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CONTENTS

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list which will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE *in that the size of the page has been reduced from 9 in. × 12 in. to 8½ in. × 11½ in. The type area of the page remains the same, namely, 7 in. × 10 in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war*

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 a.m. till 4 p.m.
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Indian Railway Stocks Repatriation

THE Treasury has taken over from United Kingdom residents nine of the twelve outstanding Indian Railway sterling debenture stocks; the remaining three are to be redeemed at par in Ferbuary next year. All twelve debenture stocks are either direct liabilities of, or guaranteed as to principal and interest by, the India Government. About £31,000,000 nominal stock is involved. The nine vested securities total some £20,000,000 and are taken over at not less than current market value for repatriation. Details of the stocks and of the prices to be paid for them are as follow:—

STOCK	Price per £100 nominal £ s. d.
Bengal & North Western 5% special debenture	102 17 11
Bengal-Nagpur 4% debentures	102 2 10
Burma Railways, 3% debenture	88 6 10
East Indian irredeemable 4½% debenture	112 8 8
East Indian 3% new debenture	*92 12 1
Eastern Bengal Irredeemable 4% debenture	104 8 0
Great Indian Peninsula irredeemable 4% debenture	104 8 0
South Indian perpetual 4½% debenture	112 8 8
South Indian 4% registered debenture, 1945	102 2 10

* Ex interest due February 4, 1943

The two largest amounts involved are the East Indian Railway 3 per cent. new debenture stock, of which there is £7,600,000 outstanding, and the same company's 3½ per cent. debenture stock, of which there is £6,800,000 outstanding. The whole operation completes the repatriation of the direct liabilities of the Indian Government which was commenced a year ago. Twelve months' notice of redemption at par on February 4, 1944, of the following three remaining securities, which totalled about £11,000,000 will be given shortly: Bombay, Baroda & Central India, 3½ per cent. debenture; East Indian, 3½ per cent. debenture; and Great Indian Peninsula, 3½ per cent. debenture. The Treasury's vested orders are made in full agreement with the Indian Government, which is taking similar steps as to holdings of these securities by residents in India.

The Transport Experiment in Eire

Considerable interest is naturally being taken throughout Eire in the results achieved by the virtual transport monopoly in North Mayo which has been granted by the Government in wartime circumstances to the Great Southern Railways. There are certain exemptions from the monopoly, namely, private vans in the service of bakers, milkmen, and builders, but the activities of 80 lorries and vans were replaced on December 7 last by 15 lorries of the Great Southern Railways, maintaining 11 regular services based on Ballina. (Further details are given on page 98.) There seems to be no doubt that the general public is served better by the new arrangements, which were introduced in order to meet the situation caused by acute shortages of rubber and liquid fuel. Private-lorry owners are indignant about the hardship the scheme is alleged to have caused them, and there is also determined opposition on the part of some wholesale shopkeepers, travelling shopmen, and garage men in the district, none of whom appears to have any claim for compensation against the Government of Eire. The question of compensation is a domestic one to Eire, however. From the viewpoint of transport organisation it is of considerable interest to learn that regularity of service has replaced irregular operations, and that the general public has welcomed the scheme. If the arrangement works satisfactorily, it is to be extended to other districts, adopting the same guiding principle as has already been applied to passenger road services in Eire. It is probable that this scheme, which is considered the best method of giving an efficient service with the least possible consumption of petrol and tyres, will have a profound effect on the post-war road transport industry of Eire.

One-way Streets and Fuel Economy

The urgent need to conserve stocks of fuel and rubber has directed thoughts to many possible wartime economies in road transport, apart from the obvious one of reducing facilities. In some parts of the country long-distance buses are now being permitted to pick up local passengers on their inward journeys, so as to avoid any waste of carrying capacity, and the protection previously granted to urban transport systems is being modified accordingly. Another point to which considerable attention has been directed is the large increase of mileages sometimes occasioned by the restriction of certain streets to one-way traffic, although so far very few modifications of such arrangements seem to have been made. Traffic roundabouts admittedly add to road mileage in order to achieve fluidity, and the view has been expressed that the reduced wartime volume of road traffic no longer necessitates the loss of mileage, as the required fluidity is more easily obtained now that traffic is less dense. Recently, the Devon General Omnibus & Touring Co. Ltd.

advanced the suggestion to the Torquay Town Council that the one-way traffic system in the Strand and Fleet Street should be suspended, and said that a saving of 20,000 bus miles a year would be achieved thereby. The Torquay Town Council turned down the proposal, and there is a local feeling that this decision was influenced by the thought that the bus company might "get something out of it." Be this as it may, the primary consideration is economy in the consumption of petrol and rubber, and the possible wartime modification of one-way traffic arrangements is well worthy of further consideration. Reference to what Glasgow has in hand is made at page 97.

Overseas Railway Traffics

The discouraging statement by the Buenos Ayres Great Southern Railway Company as to the outstripping of the traffic increases by the growth in expenses largely discounts the value of the improvement in receipts, which, however, continues on each of the six British-owned railways in Argentina. For the 27th and 28th weeks of the current financial year the respective increases in receipts are :—Central Argentine £80,379, Buenos Ayres & Pacific £47,400, Buenos Ayres Great Southern £26,540, Entre Rios £9,894, Buenos Ayres Western £6,720, and Argentine North Eastern £2,064. Brazilian railway traffics for the complete year 1942 show on the Great Western aggregate receipts of £639,800, with an increase of £95,600, and on the San Paulo a total of £1,950,435, marking an improvement of £33,996.

	No. of week	Weekly traffics £	Inc. or decrease £	Aggregate traffic £	Inc. or decrease £
Buenos Ayres & Pacific*	28th	110,700	+ 23,700	2,561,940	+ 344,760
Buenos Ayres Great Southern*	28th	181,500	+ 18,540	4,079,280	+ 280,980
Buenos Ayres Western*	28th	47,880	+ 1,080	1,452,840	+ 69,060
Central Argentine* ...	28th	137,400	+ 35,724	3,566,217	+ 621,048
Canadian Pacific	52nd	1,560,400	+ 158,800	51,373,000	+ 7,083,800

* Pesos converted at 16⅔ to £.

United of Havana traffics in the 27th and 28th weeks of the financial year showed an increase of £110,564, and the total receipts to date are £1,234,705, an improvement of £694,334.

Safety First in Freight Operation

Although in Great Britain the first effect of the war on train services was a substantial reduction in average running speeds, which has continued to operate until now, in the United States, which is under little or no serious menace of air attack, the effect has been the opposite. Some of the fastest streamline flyers have been slowed down (though even then the deceleration has only involved an addition of about 5 per cent. only to the overall journey time); but with freight service in general the tendency has been to speed up, in order to put the locomotives and the stock to the maximum possible use. This increased freight speed, as is pointed out by our American contemporary, the *Railway Mechanical Engineer*, is not without its risks, and the pressure of war conditions does not justify the slightest relaxation in the vigilance of wagon inspectors on the look-out for dangerous defects in running or draft gear, brakes, and safety appliances. A delayed wagon may inconvenience a consignee, or even hold up production at some particular plant for a matter of a few hours, but the derailment or wreckage of a train by one defective wagon may cause a hold-up of far wider and more serious effect. A particular defect to which our contemporary draws attention is the bulging of wagon sides due to overloading—a condition to which the lengthy American bogie wagons, ranging in capacity from 50 to 100 tons, are more liable than British four-wheel wagons, as any photograph looking down on an American freight yard or coal train readily shows; another source of trouble is projecting loads, and both these conditions appear to evade detection and stoppage more readily than defects of the type already mentioned. But it is emphasised that the Rules of Interchange laid down by the Association of American Railroads have been in no way relaxed, and that the war provides no excuse for compromising with safety.

Standardising American Soleplates

As a war measure, and by request of the Office of Defense Transportation, the Association of American Railroads has standardised the design of steel soleplates for rails, to expedite manufacture through reduction of the many varieties now in use. The standards, which have been approved by the American Railway Engineering Association, apply to the widely-used 112 lb. and 131 lb. A.R.E.A. flat-bottom sections, and two sizes of plate have been designed for each section. For the 112 lb. rail the plates are 7⅜ in. × 11 in., and 7⅜ in. × 13 in., and for the 131 lb. rail 7⅜ in. × 12 in., and 7⅜ × 14 in.; each plate provides a 1 in 40 cant to the rail, and has double shoulders, a flat rail seat, and a flat base. The rolling of existing soleplate sections is not forbidden, however, if manufacturers have the necessary rolls and other equipment; the ruling is that the standardised plates are to be provided in all cases in which the production of an existing type of plate would require additional equipment or interfere with war production. For rails 127 lb. and 152 lb. per yd., production is to be concentrated on the existing type of soleplate that is in the most general use with these two sections. As to rail sections of under 100 lb. per yd., the requirements are now so limited, in view of the almost universal use of the heavier sections, that where manufacturers have rolls and finishing equipment for existing types, it is recommended that their supply be continued. In accordance with the general wartime restrictions on the use of copper, it is no longer permissible to manufacture soleplates from copper-bearing steel.

Early Signalling on the New York "L"

Brief reference was made in our January 1 issue, when illustrating views of the New York Elevated Railways, to the comparatively simple signalling arrangements used, as on some other elevated lines in the U.S.A., though not all. A mechanically-worked automatic signal system was installed on the Ninth Avenue line in New York in 1888 by the then Roadmaster (Engineer) Robert Black and included over thirty signalling sections. What looks like one of his signals at "clear" was to be seen in the foreground of our top illustration on page 13. The signals were operated by wheel depression bars and some form of rod or wire connection between them; the sections of course were very short. From brief but trustworthy references it appears that the working was sufficiently reliable. Black was a civil engineer of considerable reputation and had worked on the construction of the original Grand Central Terminal. He became well known in elevated railway circles. It is said that his automatic signals found a limited application on one or two other "rapid transit" lines. Few attempts have been made, for obvious reasons, to use purely mechanical apparatus for automatic signalling and Black's success with it is probably unique. We remember seeing some trial equipment of the kind on the District Railway, between West Brompton and Parsons Green, in the steam-train days.

Mechanical Block Working

Another form of the same sort of construction has been seen in the mechanical block telegraph systems produced by one or two inventors. They appear to have found application, at least on any successful scale, in France only, for the mechanical "station block" used in South Germany does not quite come under this class of work. One or two French railways tried the idea on short block sections, but the apparatus developed by the old Ouest line and installed on the routes from Paris (Invalides) was the best known and was shown at exhibitions. Each block post had a square absolute stop signal and round-disc outer with Aubine-type reverser mechanism. The frame had an extra lever which was pulled over to free, by wire transmission, the lever of the block section signal in rear. By a combination of automatic backlocking, reverser treadle action, and rotation locking, this lever could be put back and pulled again only at the right time. The signalman was forced to make every movement correctly. Peculiar mechanical-locking mechanism acted on indicator signs behind the frame, serving as block instrument indicators. The block sections were rather short, but the system could be efficiently worked at a fair distance. No bell signals were exchanged; everything was done by observing the indicators and the passing trains. "Normal clear" working was used. If a train had to pass a stop signal in an emergency the signalman had to mask its red and white squared face by a special white cover plate before handing his permissive order to the driver, to preserve the strictly absolute character of the signal aspect. Apparatus of this kind was in use up to twenty years ago.

Tare Reduction by Articulation

An interesting example of adaptation of rolling stock to locomotive needs, rather than of locomotive power to rolling stock demands, may now be seen on the L.M.S.R. Shortage of motive power for some time has made it necessary, on the Euston—Birmingham—Wolverhampton service, to revert from the "Royal Scot" 4-6-0s used in the early stages of the war to 4-4-0 locomotives of the Midland compound type, which are of considerably less power, for the working of the majority of the trains. The passenger requirements call for at least ten bogie vehicles, and eleven bogies is the commoner formation, with a tare weight of about 340 tons. This the compound can manage, but with no reserve for the recovery of time lost by out-of-course delays, especially if the more heavily-graded Northampton route be followed; and with trains of greater weight than this it has been

necessary to pilot the compounds. From various parts of the system there have been collected the articulated vehicles built for excursion purposes shortly before the war. Of these, four "twins" provide 18 first and 411 third class seats in a total tare of only 196 tons, and by adding four more vehicles to these, chiefly to supplement the first class accommodation, about 500 third and 80 first class seats are provided in a total tare weight of 316 tons. Such a train, with twelve coach-bodies carried on 40 axles, provides slightly more seating than an eleven-coach train of ordinary stock, but in a tare weight less by 24 tons, or almost the weight of a bogie coach. In first perfecting the articulation of coaches, the late Sir Nigel Gresley claimed that there would be economy in weight as well as in length, and this is an example of how the weight economy is being put to good use.

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Large American A.C. Electric Locomotives

Of five Westinghouse electric a.c. locomotives on order for the New York, New Haven & Hartford Railroad, three are now reported by our American contemporary, the *Railway Mechanical Engineer*, to have been placed in service. Intended chiefly for hauling 5,000 (U.S.) ton trains between New York and New Haven, these locomotives nevertheless have a top speed of 65 m.p.h., which makes them suitable for hauling 20-coach passenger trains to regular schedule. They are streamlined and easily converted, by the provision of alternative gears between motors and axles, for a top speed of 90 m.p.h. Current is collected from an overhead line at 11,000 volts 25 cycles and, after transformation, is fed to six twin motors of the single phase, commutating-pole, series variety, each of which develops 810 h.p., continuous rating, or 1,500 h.p. intermittently, and each drives its own axle on the quill principle developed by the Westinghouse company. A maximum total of 9,100 h.p. is developed at 38 m.p.h. when the corresponding tractive force is 90,000 lb. or 25 per cent. of the adhesive weight. The locomotive is 80 ft. long overall and its total weight, carried on six driving axles and two four-wheel trucks, is 500,000 lb. The mechanical parts were manufactured by the Baldwin Locomotive Works.

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Locomotive Boiler Movements

Apart from the degree of expansion at the back and sides of the firebox, knowledge of which has always been necessary in order to cater for expansion angle and expansion bracket clearances, there has been little actual detailed measurement as to the deflection or movement of vital parts of locomotive boilers under conditions of pressure or temperature. Some hydrostatic tests made on the firebox of a large boiler have recently made up a little of the deficiency. This particular firebox was about 8 ft. 6 in. wide and contained two thermic syphons, and one result of the 1,400 readings taken at 200 different points, at pressures up to 320 lb. per sq. in., was to confirm that the back end of a boiler moves up and down vertically, and in and out laterally, with changes in pressure and temperature, and that roof and crown sheet and backplate thicknesses should not be calculated merely on tensile strength desiderata, but also on deflection and "breathing" requirements. In general, the top of the box seems to sag down and the sides to spread out, but the boiler under consideration had a smaller downward movement with water at a temperature of 210° F. and 255 lb. per sq. in. pressure than with water at 100° F.; on the other hand the lateral spread was greater. The maximum deflections noted were $\frac{9}{16}$ in. and $\frac{31}{64}$ in. downwards for the roof and crown sheets respectively, and the corresponding maximum lateral spreads were $\frac{13}{64}$ in. and $\frac{35}{64}$ in. At the foundation ring the maximum spread was $\frac{3}{32}$ in., and between the syphons $\frac{11}{16}$ in. A longitudinal movement of $\frac{19}{64}$ in. was observed at a water temperature of 210° F.

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Guardians of Gloom

When we contemplate the military art we often speculate on the part played by the guarding of railway tunnels. Is there, we wonder, a future in it. Does a Field-Marshal's bâton lie at the end of the presumably long road which begins on the slopes of many a railway cutting? What dreams animate the remote khaki figure who broods over our lost few seconds of daylight and our glorious emergence from thunderous gloom. Is his tunnel a source of joy and pride to him, akin to a well-polished barrack-hut or a newly blancoed belt, or is it, quite literally, just a bore—a horizontal hole in the ground, rendered ridiculous by a pretentious portico. We hope not. We like to think of our anonymous guardian in years to come sitting in a first class diner and, as his train, with a shrill whistle, quits the light of day, exclaiming to an equally prosperous companion, with a possessive wave of his hand, "My old tunnel!—I served there in '42."

L.N.E.R. Organisation Changes

IN our issue of August 21, we recorded the appointment of Mr. V. M. Barrington-Ward as Assistant General Manager (Operating) of the London & North Eastern Railway. It was announced that this was a wartime measure, and that he would have all-line responsibility for the movement of traffic and for the distribution of locomotive power between the Southern, North Eastern, and Scottish Areas into which the L.N.E.R. system is divided. In our issue of December 11 we recorded the appointment of Mr. J. C. L. Train as Chief Engineer for the whole of the L.N.E.R. system. It was announced that he would have the help of three area engineers who had previously reported to their Divisional General Managers, and that he would also have an Assistant Chief Engineer at Headquarters. Before these two appointments the company had no Chief Operating Officer, Chief Goods Manager, Chief Passenger Manager, or Chief Civil Engineer for the whole system.

The reasons for these two important changes in a system of organisation which had apparently worked well for the past 20 years is explained to the staff in an article in the January issue of the *London & North Eastern Railway Magazine*. Well equipped as the railway was to deal with a growing volume of traffic passing along customary routes, the dislocation of trade brought about by the war stopped many of the old and regular train movements. In their place came new and strange transits over long distances. This change will have its brief day during the war, and will probably be undone when peace comes. The Government has assisted the company to provide extra facilities for the conveyance of this extraordinary and probably transient business. Many schemes for constructing running loops, new sidings, and for improving train controls have been carried out. In this way the capacity of the main running lines has been substantially increased and after the war ends an inquisition will be held on the commercial case for making some of these "emergency works" a permanent part of the L.N.E.R. system.

But as facilities are of little avail unless they are judiciously used and maintained, the board has recently reviewed the organisation laid down when the London & North Eastern Railway came into being following the grouping after the last war. The first change made was the appointment of Mr. Barrington-Ward as Assistant General Manager (Operating) and the placing under him of the Central Traffic Office to hold the balance between all sections and districts of the system. This new office regulates traffic in a more precise manner than was previously possible. It also adjusts locomotive power to meet fluctuations in forwardings just as the rolling stock control distributes wagons to meet "proved needs." The success of the experimental arrangement is stated to be due largely to the vigour and persistence, tempered by tactful discretion, which Mr. E. J. Vipond, Principal Assistant (Operating) to Mr. Barrington-Ward, and his staff, have thrown into their work. The article states that these changes were announced as a wartime measure, but the odds at present are that they will be retained as part of the company's permanent administration after the war.

The Civil Engineering Department has been remodelled on much the same principle. Mr. J. C. L. Train has been appointed Chief Engineer for the whole system; reporting direct to the Chief General Manager. He will speak and act for the whole system on questions of standardisation and maintenance of permanent way, but will not interfere with details which can be settled between his representatives in the three areas and the Divisional General Managers with their traffic officers. The Area Engineers at London, York, and Edinburgh, will in future be responsible to the Chief Engineer, and not to the Divisional General Managers. For the present there will be no adjustment of track mileage assigned to the 20 district engineers who look after the 6,330 miles of first track, but some of the boundaries between districts may be revised at an early date. Reducing these miles to single track, there are over 11,400 miles of running line to maintain as well as nearly 5,000 miles of sidings. The salaried staff of the Chief Engineer number about 1,500, and the men and women in wages grades number over 25,500.

So much for the changes in organisation. An interesting paragraph in the *London & North Eastern Railway Magazine* article makes it clear to the staff that the abnormal volume of passenger and freight traffic has not benefited the company financially. Under the terms of the Railway Control Agreement settled with the Government, the L.N.E.R. Company receives an annual sum of £10,136,000 from the net revenue pool; to this annual sum of £10,136,000 has to be added the income from interest and dividends from undertakings excluded from the pool of net revenue—mainly the road transport undertakings in which the company is interested. In 1941 this income amounted to £511,000, making the net revenue for that year £10,647,000, which, after provision had been made for wartime contingencies, and after meeting interest and dividends on prior stocks, was sufficient to pay 2¾ per cent. on the 4 per cent. second preference stock. The holders of ordinary stocks to the amount of £78,300,000 did not receive any

return on their investment though the property which they helped to create has been of inestimable value to the country. During the period from 1923 to 1938 the company spent £91,300,000 in modernising its permanent way and structures, rolling stock, road motor fleet, steamboats, and docks. Of that huge sum £71,000,000, or 78 per cent., was met from revenue or revenue funds. But for this liberal ploughing back of net earnings into the undertaking, the railway would not have been able to cope with the stress and strain of the war years.

Railway Civil Engineering Practice

ON page 100 of this issue we publish an abstract of the Paper read this week by Mr. George Ellson, Chief Engineer, Southern Railway, before the Institution of Civil Engineers—Railway Engineering Division, under the title "Modern Trend of Railway Engineering Practice." Many of the numerous features of railway civil engineering to which the author refers could readily be selected as the basis for separate discussions and in a comprehensive survey of this nature have perforce been dealt with somewhat briefly. But no one will deny that the paper as a whole is undoubtedly a valuable contribution to the literature available in respect of purely railway engineering subjects and that it constitutes a useful record of achievements in this field between the last war and the present day.

The rapid development of electrification on the Southern Railway during the past ten years, entailing as it did an increase of 120 per cent. in electrified track to be maintained, no doubt presented many problems. But the company may be considered fortunate in that the experience already gained in respect of the 800 miles of line converted to electrified working at an earlier period gave some indication of the difficulties likely to be encountered by this extension and enabled much useful experimental work to be undertaken with the result that solutions to some of the outstanding problems involved were well advanced when development commenced and have since progressed in many directions. The principal factors affecting the maintenance of track under electrified conditions as opposed to permanent way laid down for steam operation only are the unsprung loads and smaller wheels of electric stock, an increase in the frequency of train services, more rapid acceleration and braking and frequently higher speeds. All these factors result in the rails in electrified lines suffering comparatively rapid head wear; and in this respect the use of medium manganese rails treated by the well-known regulated sorbitic process including retarded cooling has afforded considerable relief.

Many of the improvements introduced during the period covered by the paper are not confined to electrified lines, for example, rail and flange lubrication, resurfacing of worn crossings by welding, and chemical weed killing. The extended user of teak and, more recently, of spring steel rail keys in lieu of oak for minimising the longitudinal movement of rails, known throughout the world as rail creep, may be taken as one example of the railway engineer's endeavour to reduce maintenance expenditure whilst at the same time improving the track as a whole. It may not be generally appreciated that the adjustment of track subject to rail creep costs the railway companies thousands of pounds a year, because a large proportion of work of this nature entails Sunday operations. In countries where the flat-bottom rail is employed, anti-creep devices constitute additional permanent way components, whereas in Great Britain a well-fitting teak or steel rail key that will remain tight serves the dual purpose of retarding creep and holding the rail in the chair. Whilst the use of steel keys may be said to have become more general during the past ten years, some railways have used teak keys extensively for over 40 years and it may be recorded as a matter of interest that the Great Western Railway Company contracted for the purchase of two million teak rail keys as long ago as 1893.

The importance of the railway sleeper as another link in the chain of components constituting the track is emphasised by the fact that British railways normally require 4½ million sleepers a year for replacement purposes, and it is therefore incumbent on the railway engineer at all times to obtain the longest possible life from his sleepers. In normal times the most economical sleepers are those imported from Baltic ports and North America, and it is during periods of restricted supply as in 1914-1918 and after, and again today that alternatives receive serious consideration. Certain exceptions to this may, of course, be instanced in the extensive trials of steel sleepers between 1929 and 1936 and the apparent preference of the Southern Railway for hardwood Jarrah sleepers. As to the latter, we are informed that the experience of one railway in this country which laid down substantial quantities of Australian hardwood sleepers (Jarrah and Karri) at various times between 1900 and 1928 indicates that although on the whole they may give a longer life than creosoted softwoods, there is a tendency for them to produce a "hard" road from the running point of view, with indications that they contributed in some measure to an unduly high proportion of cracked rails. It was also found that owing to the nature of those hardwoods they had less grip on the ballast than softwood sleepers with the result that rail creep was intensified. On the other hand Mr. Ellson has stated that the former London, Brighton & South Coast Railway used large quantities of Jarrah sleepers and they were in good condition after thirty years' wear; nor had he found they gave a hard road. Incidentally, Mr. Ellson remarked that he has often been surprised at the varying experiences of different railways.

The limitations imposed on the general use of steel sleepers by the large and ever increasing mileage of track-circuited lengths applies also to some extent in respect of reinforced concrete sleepers. On the question of corrosion there is evidence that it may be rather too early to accept the Southern Railway experience as a criterion of the possible condition of steel sleepers after 10 or 12 years where they are subject to conditions favourable to corrosion. The largest user of steel sleepers in this country during the period referred to was, we believe, the Great Western Railway Company, which laid in well over half a million. These were mostly of the G.K.N. composite type consisting of a steel trough section with cast-iron rail chairs cast in position by means of snugs passing through the sleeper plate. We understand that although the majority of these sleepers are still fairly satisfactory so far as can be ascertained without removing them from the track, one or two instances of excessive corrosion have occurred necessitating renewal after 10 years' service. Experiments are being carried out by this company in collaboration with the Corrosion Committee of the Iron and Steel Institute, and we are informed that serious corrosion effects were recently disclosed when steel sleepers laid in a marine atmosphere ten years ago were removed for examination. It may be that a steel sleeper entailing the juxtaposition of dissimilar metals is more readily attacked by corrosion, due to galvanic action, than one in which the various parts consist of steel having nearly identical characteristics, such as the Sandberg design.

The present trend to further the technical education of employees nominally termed "manual" owes much so far as the railways are concerned to the wisdom of the Southern Railway, in inaugurating the special classes for permanent way men which have since been adopted by other railways with successful results. In concluding the discussion which followed his paper, Mr. Ellson stressed the importance, particularly in view of shipping and exchange difficulties, of further research and experiment in the manufacture, and use of new materials suitable for railway construction and maintenance.

War Advance Claim by Senior Railway Staff

IT is clear from representations reaching us that considerable dissatisfaction exists among a section of the higher-paid railway staff regarding its failure to obtain equality of treatment with the lower-paid staff in the matter of the war advance. The facts are that the Railway Staff National Tribunal has awarded railwaymen a war advance which, in the case of clerical staff earning up to £500 a year, has been increased in four stages until it now stands at £41 a year. There are, however, about 1,500 members of the railway staff in receipt of salaries over £500 and not exceeding £1,000 a year who so far have not been granted any portion of the war advance. This important section of the staff includes senior shopforemen, controllers, stationmasters, technical and clerical staff, and junior officers. The tremendous burden which has been carried so successfully by the railways since the outbreak of war has obviously brought considerably increased responsibilities to these supervisory members of the staff and has necessitated their working very lengthy hours for which, under a long-standing arrangement, no additional remuneration whatever is paid. In addition, the incidence of the heavier rates of income tax on their salaries has been decidedly more onerous than in the case of the lower-paid staff. In 1920 this section of the staff was placed on a similar footing with the remainder of the staff in connection with the cost-of-living bonus and the extension of the existing war advance to it would appear to be fully justified.

The number of staff concerned is so small that cost cannot be the restraining factor; and, although it is believed that the Railway Executive Committee are sympathetic to granting the con-

cession, the fact remains that negotiations have been in progress unsuccessfully since May, 1941. It is understood that the Treasury is adamant against the grant of the claim on the ground that any concession to this small section of the railway staff would create a difficult precedent for the Civil Service, but we cannot imagine that even the oldest member of that much maligned department would be prepared to contend that the conditions of service of the railway staff concerned are equal in all respects with those of comparable staff in the Civil Service. Moreover, even were this objection well founded, it is common knowledge that flat rate or percentage war advances are already being paid to staff in this (and even higher) salary scales by a number of commercial concerns, so that the precedent already exists in a fairly wide range of business without apparently causing any serious repercussions in the Civil Service. It is recognised that the railway staff in these special class positions is not so highly organised in trade unions as those earning below £500 a year, and its failure to secure the remedy of what appears to be a genuine grievance is making its position very invidious in this respect. The claim is, we understand, still under consideration by the Treasury, and it is to be hoped that it will not delay much longer the grant of what appears to be a fully justified claim. In our opinion any percentage advance or bonus should be carried right up to the top and even made retrospective, as the more highly placed railway officers are the worst hit of all by the incidence of taxation, and greatly increased responsibility. Many of them are working what is in effect a 16 hr. day, Saturdays and Sundays included.

Argentine Railways and the Mitre Law

IN less than four years the British-owned railways in Argentina will be faced with the expiry of important concessions under the Mitre Law, which came into force in 1907. The primary object of the law was to encourage private enterprise to build railways, which were indispensable to Argentine progress. Inducements were substantial and, during the ensuing seven years, railway construction went ahead at a great pace. Vast areas of some of the richest wheat and grazing lands in the world were opened up to development and the wealth thereby created was immense. Briefly, the Mitre Law empowers the companies to earn net receipts up to 6·8 per cent. on the capital invested and to import, duty free, materials required for construction and operation until January 1, 1947, subject to the payment, during the same period, of a single tax of 3 per cent. of the net receipts, in consideration of which they are relieved from all further taxation—national, provincial, and municipal. The lines are owned in perpetuity, though the Government has the right, but not the obligation, to purchase them for the amount of their recognised capital, plus 20 per cent.

Notwithstanding the manifest advantages derived from unrestricted private enterprise, which provided Argentina with a nationwide network of railways in the minimum of time, official policy has tended towards state-ownership. In the early days of railway development, the State confined its attention to the construction of lines in backward areas of the country, which were not sufficiently promising, from a revenue-earning standpoint, to attract private capital. By a process of branch-line construction and the acquisition of small British-owned companies (among more recent purchases are the Cordoba Central and Argentine Transandine), the State Railway system has grown to be the largest in the country. At present, approximately one-third of the total railway mileage is state-owned. Most of the Government lines are metre gauge, and were therefore cheaper to construct and operate than the broad and standard-gauge systems owned by the British companies and, as they are financed in pesos, are immune from foreign exchange losses. Up to the war of 1914-19, most of the British-owned railways did well; the principal companies paid up to 7 per cent. on their ordinary stocks. On the conclusion of hostilities, however, Argentina, like most countries, had to face fundamental alterations in her financial and economic structure to meet vastly changed world conditions, from the effects of which the railways could hardly expect to escape. Rising world prices increased operating costs, particularly fuel and wages, and although fuel bills subsequently fell to more reasonable levels, labour charges continued to advance, through the introduction of social legislation entailing shorter working hours, rising scales of pay, liberal pensions, and other benefits. Nevertheless, the companies have experienced intermittent periods of prosperity, thanks to the great natural wealth and recuperative powers of the country. On the other hand, in less favourable years, their net revenue has suffered, chiefly through the rigid character of the social legislation, which has precluded the possibility of adjusting expenditure to the sudden falls in income inevitably identified with railways which operate in predominantly agricultural regions.

Apart from problems arising within the country, the British-owned railways have also been subject to the vagaries of fluctuating foreign exchanges. It is true that considerable profits, at times, have been derived from the conversion of peso net receipts into sterling, but, far more often, there have been severe losses. Indeed, it is no exaggeration to say that the unstable international value of Argentine currency has been the major cause of the financial collapse of all the British companies. The problem of bridging the gap between the internal value of the peso and its value in the international exchange markets, as expressed in sterling, has hitherto defied solution and, in consequence, for many years it has been impossible to raise fresh capital for much-needed improvements. As in most parts of the world, the railways of Argentina have had to contend with devastating road competition. Efforts to conciliate the interests of rail and road have so far proved ineffectual and road operators have effectively prevented the raising of railway charges to off-set rising working costs. On the contrary, rates have frequently had to be substantially reduced in order to retain traffic. Furthermore, after the present war, there will arise new competition from the air, which will particularly affect railways in countries such as Argentina, where journeys and hauls are long. When the Mitre Law was drafted in 1907, gold was the universally accepted standard of value and managed currencies were unknown; road motor transport was disregarded as a potential competitor of the railway; and air transport was no more than a remote possibility. When framing new legislation to replace the Mitre Law in 1947, the ingenuity of Argentine-railway experts and legislators will be severely taxed if the privately-owned companies are to continue to fulfil, unimpaired, their major rôle in the progress of the country.

Passenger Classes in India

ON most main-line railway systems there are first, second, intermediate, and third class tariffs and accommodation. The fares, though primarily based on mileage, are generally telescopic; the rate per mile falls fractionally as the journey lengthens. No standard fares current throughout the Sub-Continent can be quoted, as they vary slightly on different lines and also from time to time even on the same system. Generally, however, the third class fare may be taken as about 3 or 4 pies a mile, or as averaging approximately ¼d. a mile. Intermediate fares are, perhaps, 5 to 6 pies (under ½d.), second class, 8 to 12 pies (¾d. to 1d.), and first class, 15 to 24 pies (1¼d. to 2d.) a mile, the latter the basic short-distance figure. Very small terminal taxes are often added. Return fares vary, but usually average about 1½ times the single fare, especially over the longer distances. In certain circumstances season and cheap tickets are obtainable and greatly-reduced tariffs apply to long-distance journeys to and from religious *melas* or fairs, for the benefit of pilgrims. The only supplements charged are for travel in air-conditioned coaches on about half-a-dozen main-line routes, though on some lines slightly higher charges are made for travel by mail or express train. Reserved compartments are available on payment of so many fares, and for parties special tourist cars are available. These are self-contained with private kitchens, servants and luggage compartments.

Very generally, it may be said that civil and military officers and their families as well as Europeanised and some other well-to-do Indian non-officials usually travel first class, and that most Anglo-Indians, medium-graded Indian officials, missionaries, and educated Indians of more moderate means, travel second. Clerks, artizans, and not-so-well educated Indians generally, are usually found in intermediate class carriages, whereas third class compartments accommodate peasants, servants, and coolies. With very few exceptions—notably on suburban and other short-distance services—trains are made up of non-corridor lavatory stock in all classes. Upper class composite coaches often have third-class coupés reserved for the servants of first and second class passengers. It will be noted that there is no colour bar, but compartments are reserved for women. Separate dining cars are run on certain trains for both Europeans (and Indians if they conform to European habits) and Indians; the latter are divided or in duplicate for Hindus and Mahomedans, who have to be catered for separately. Apart from coupé compartments, Indian carriages are much more spacious than British and travel is comfortable. Electric fans are provided in most classes nowadays and ice and mineral waters are carried on all main-line trains, as well as being on sale at all larger stations *en route*. Shower-baths are fitted in many first class coaches. Lighting is good, and the running smooth.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Gradient Posts

Bordyke, Burgess Hill,
Sussex. Jan. 11

To the Editor of The Railway Gazette

Sir,—Mr. Kenneth Brown's quotation from a report by the Inspector-General of Railways, dated December 21, 1842, concerning gradient posts on the North Midland Railway, is interesting.

The *Railway Chronicle* for August 16, 1845, under the caption "Our Special Commissions. No. 1. Report on Mile-posts and Gradient Posts," states "Gradients are marked only on the Birmingham(*a*) and Brighton(*b*) lines—but the *modus operandi* is not the same; on the Birmingham the gradient is shown by the head of the post being shaped level or slanting up or down, as the case may be.* On the Brighton a finger post† extended, level or slanting tells the gradient."

This "special commissioner" evidently was unaware that the North Midland Railway(*c*) had installed them. He mentions that in consequence of an accident on the Cambridge line, "gradient posts on this line are to be erected immediately."

The preamble of the Railways Clauses Act, 1845, refers to special clauses in the Acts incorporating various railways, and for including many of these in the Railways Clauses Act.

Sections of the proposed railways deposited with the plans showed the inclinations (or gradients).

Section 14 of the Act deals with alterations of the gradients, within limits, of those shown on the sections, but no mention is made of gradient posts. Therefore, the provision of them was apparently not a statutory requirement at that time, although Acts incorporating some railways may have included the erection of such posts.

The Inspectors of Railways may have suggested the provision—they could not have ordered it, without statutory authority. In any case the engineers of the railways would have recognised the utility of gradient posts, as would the traffic officials in the interest of engine drivers, etc. For these and other reasons doubtless it became a settled thing for the railways to provide gradient boards.

I have not come across any enactment dealing with matter between 1945/61 (but may have missed it); later I have not the facilities at hand to continue my search.

The "Requirements of the Board of Trade in regard to the opening of railways," dated 1905, paragraph 31, reads "Mile posts, and ¼-mile posts, and gradient boards to be provided along the line." It may therefore be assumed that before that date their provision was required by statute, or its equivalent. I can remember gradient boards being general quite 60 years ago.

Yours faithfully,
G. A. SEKON

(*a*) Opened throughout Sept. 17, 1838
(*b*) Opened throughout Sept. 21, 1841
(*c*) Opened May 20, 1840
* Illustration of post
† Illustration of gradient-board

Midland Railway Service to Richmond

40, Edenfield Gardens, Worcester Park,
Surrey. Jan. 11

To the Editor of The Railway Gazette

Sir,—With reference to the recent interesting correspondence on the above subject, I have the Midland Railway Company's Public Timetable for August, 1875, among my collection and give herewith details of the original service between Moorgate Street and Richmond.

On weekdays the first train left Kentish Town 7.45 a.m. due Richmond (New) 8.25 a.m.; trains left Moorgate Street at 8.46 and 9.37 a.m. and 12.10, 4.1, 5.15, 6.14, and 7.5 p.m. In addition, there were extra trains starting from Childs Hill at 11.25 a.m., 2.37 and 9.22 p.m. Journey time was 55 minutes calling all stations from Moorgate Street to Richmond; the 8.46, 9.37 a.m. and 5.15 p.m. missed Haverstock Hill, Finchley Road, and West End.

On Sundays there was a service of six trains; the first started from *St. Pancras* at 8.30 a.m.; the last left Moorgate Street at 7.34 p.m.; the remaining four trains ran between Childs Hill and Richmond only.

In the up direction trains left Richmond (New) on weekdays for Moorgate Street at 7.45, 8.55, 9.56 a.m., 1.41, 3.36, and 5.15 p.m.; in addition there were trains from Richmond to Childs Hill only at 10.43 a.m., 12.5 and 8.15 p.m., and also from Richmond at 6.39 and 9.30 a.m., terminating at Kentish Town.

The Sunday service consisted of four trains from Richmond to Childs Hill and two (6.20 p.m. and 9.28 p.m.) to Moorgate Street. It will be seen, therefore, that there was a through train from St. Pancras on Sundays only but no corresponding return service. The through service was withdrawn February 1, 1876, as stated, and a shuttle service of trains between Childs Hill and Harrow Road was substituted—(9 down, 10 up—No Sunday Service). Connections were arranged at Childs Hill. This service remained practically unaltered until April 30, 1878.

Commencing May 1, 1878, an entirely new service of trains was inaugurated between St. Pancras and Earls Court (District Railway) *via* Acton and Hammersmith; connections were given at Turnham Green with District trains to Gunnersbury, Kew Gardens, and Richmond. There were 15 trains each way; the first and last from St. Pancras were 6.44 a.m. and 9.50 p.m. respectively. In the reverse direction the first train left Earls Court 7.53 a.m. and the last 11.14 p.m. There was no Sunday service.

The through service between St. Pancras and Earls Court remained virtually unchanged until September 30, 1880, when it was withdrawn, as it failed to attract the expected traffic. From October 1, 1880, the shuttle service between Childs Hill and Harrow Road was resumed. Harrow Road was renamed Stonebridge Park for West Willesden and Harlesden on July 1, 1884.

On July 2, 1888, the service was withdrawn and the line closed for passenger traffic to be reopened again on January 1, 1893, with a service of shuttle trains between Childs Hill and Stonebridge Park. Commencing January 1, 1894, the service was extended to Gunnersbury with an average of about 12 trains daily in each direction. Passenger services were finally withdrawn on October 1, 1904.

I trust I have not taken up too much of your valuable space; I have been intending to write for some considerable time, but due to serving in H.M. Forces, have had to wait until leave has permitted me an opportunity to search my records.

Yours faithfully,
V. STEWART HARAM

Locomotive Crews

90, Strafford Gate, Potters Bar,
Middlesex. Jan. 4

To the Editor of The Railway Gazette

Sir,—I understand that Mr. Stroudley contended, and produced figures in support of his contention, that the system of one named crew, that is, one driver and one fireman, for each locomotive, justified itself in that being psychologically correct it did, in fact, benefit his company (the L.B.S.C.) by reducing running and maintenance costs to a level sufficient to more than offset possible disadvantages. I do not suppose he actually used the word "psychological"; that, however, is the obvious implication.

A rather heated discussion has arisen around the fact that so far as we are aware, on none of our main systems is this method in use as a first principle of locomotive operation.

There may be many cases where "one locomotive one crew" occurs quite regularly, but as incidental, or it may generally be considered desirable, and practised, where not interfering with other, possibly more important, factors. These cases, however, cannot be regarded in the same light as Mr. Stroudley's method.

It can hardly be doubted that almost any piece of machinery, locomotives in particular, is the better for being handled solely by one competent crew. Could you then throw some definite light on the issue by quoting a recent authority, or any reliable information you may have, as to the reasons, operational and economic, why the companies in this country under modern conditions (wartime excluded) do not see fit to have their locomotive operations controlled by the same guiding rule as that which, at least in Mr. Stroudley's day, and on that particular system, proved successful.

I am,
Yours truly,
A. THWAITES

[It was the practice of more than one company in years past to allocate engine crews to particular engines and, as on some lines a coal bonus was paid to the enginemen to encourage low coal consumption, the crews naturally preferred to use the same engine. With the general introduction of the 8-hr. day, however, this practice had of necessity to be discontinued as engines are frequently worked 12 hr. and often 13 hr. a day, and its re-introduction under present day normal conditions would obviously be uneconomic.—Ed. *R.G.*]

The Scrap Heap

During last year London Transport saved 1,700 tons of paper by reducing the size of tickets, salving tickets, and by the pulping of old records.

* * *

The first locomotive to be constructed in Chile, called *Juan Antonio Rios* in compliment to the President of the Republic, has been put into service.—*From "The Times."*

* * *

The L.M.S.R. has already hauled nearly 40,000 tons of seed potatoes from Scotland to England—an increase of 50 per cent. over last season's figure. Nearly 7,000 wagons were used to convey the traffic.

* * *

The "hello girl" is no longer exclusively claimed by the telephone exchange. She greets us on the railway platforms of wartime Britain, and a heart-warming welcome it often is. I walked on to the platform at Grantham on a depressing night recently, and was hailed by the loud-speakers with a cheery "Hullo, passengers!" It was a friendly hello, and I felt better for it. This certainly seems to be one wartime job in which women are showing peculiarly apt qualities. Some of those masculine announcements from the railway loudspeaker in peacetime had a husky, fog-horn pitch which did not always get across. But there is far more in this than mere clarity. My announcer of Grantham railway platform might so easily have lapsed into a deadening monotone through constant repetition. Instead, a welcoming smile shone through her words.—*From "The Yorkshire Post."*

* * *

Letters despatched from London Transport headquarters, at 55, Broadway, now carry a special postal meter-mark embodying the slogan "For Comfort Stagger Hours." It is hoped, in this way, to give a spur to the appeal, which the board has made to 120 large undertakings in the City and the West End, suggesting a variation of office hours to relieve pressure on the transport services at about 9 a.m. and 5 p.m. Staggering schemes were introduced in many industrial areas last winter, and there are now 47 local committees, responsible for the daily travel movements of over 500,000 workers. The new appeal has met with a considerable measure of success: already some 60 firms have modified the working hours of their staffs, and other firms are expected to follow suit. Government departments also are exploring the matter, and it is stated that meetings will be held shortly to determine the action to be taken.

* * *

"The Railway Times"—III

"Herbert Allen had a genius for the analysis of figures. For more than twenty years he was the manager, and sometimes the owner, of the paper, which always had a hard struggle for existence. Then, as the result of the Forwood libel action, more details of which are given in a later chapter, he organised an agitation amongst the Costa Rica Railway shareholders against the Board, which resulted in the directors being turned out and Mr. J. W. Philipps, now Lord St. Davids, being appointed Chairman, and Herbert Allen Vice-Chairman. Thenceforth the centre of his interests changed from the small newspaper office in Exeter Street, Strand, to the City. Other agitations followed, and in a few years he had reconstructed and in most cases assumed the chairmanship of three or four large Russian Petroleum companies as well as of the Anglo-Portuguese Telephone Company. In these efforts he was seconded by a very able and versatile leader-writer of *The Railway Times* and of *The Globe*, Mr., afterwards Sir Richard, Barnett.

"Into the narrow limits of Burleigh Street, we had managed to squeeze four papers—*The Guardian, The Railway Times, The Investors' Guardian,* and *The County Council Times.*

"A libel action was brought (somewhere in the sixties) by Sir Edward William Watkin (E.W.W.) against *The Railway Times* and its printer. Sir E. W. Watkin was a great railway magnate, the controller of the Metropolitan, the South Eastern, and the Manchester, Sheffield & Lincolnshire Railways, and the begetter of the Great Central Railway Company. His rival was James Staats Forbes, the controlling power in the Metropolitan District and the London Chatham & Dover Railways. *The Railway Times*—for what reason I do not know—supported Forbes, and in an attack upon Sir Edward W. Watkin printed a silly couplet:

Here underneath lies E.W.W.
Now nevermore will he trouble you, trouble you.

"I suppose there was something worse than this trumpery rhyme to justify the action, for the paper went down, for some small damages."

The quoted extracts are from the volume "The Business and I" by the late Mr. W. J. B. Odhams.

(To be continued)

* * *

700,000 Civil Servants

Government ramifications spread ever further. There are now 23,000 Government buildings in the country, many of them administrative. Two years ago the total was about 14,000. Departments and services multiply; the latest addition is the Ministry of Town & Country Planning, which will shortly be given legal existence by Act of Parliament, and will then have to be housed. There are now 700,000 Civil Servants. The Government is anxious not to exceed this figure and is seeking to reduce it. The greater the number of officials, the more accommodation needed for them; the more blocks of flats and other places have to be taken over; and the more labour and material have to be consumed to adapt these premises. The alteration and maintenance of Government buildings is the job of the Ministry of Works. The cost is colossal.—*From "The Evening News."*

A poster issued by the London Passenger Transport Board, designed by Mr. L. D. Luard

From "The Evening News"

* * *

Drivers and firemen on the L.M.S.R. in the Nottingham area went on strike on the night of December 10-11, because of the withdrawal of "knockers-up." Between 300 and 400 men were involved in the stoppage, which involved a cancellation of some trains. The men claimed that it was impossible to obtain alarm clocks, which would act as substitutes to the "knockers-up." The strike was settled twenty-four hours later, after the company had offered to resume the system of "knockers-up," and the Ministry of Labour had promised that the Labour Exchange would provide eight additional "knockers-up." Until these were available the strikers agreed to provide a rota of "knockers-up."

* * *

Canadian Pacific Railway sleeping and dining car department is one of the largest buyers of manufactured linen on the American continent. The company has $600,000 invested in essential linen for passenger service. This involves a stock of 800,000 pieces, ranging in unit prices from 20 cents to $8·50. So that purchasing from the linen mills in Canada and the United Kingdom may be planned on a long range basis, it is now necessary to estimate requirements from one to eighteen months in advance.

* * *

Tailpiece

A fifty-yards stretch of track at Witham Station, destroyed by a tip-and-run raider, was restored in 4 hr.

O you can tip and you can run,
Adventurous but speedy Hun!
You leave a hole where something stood,
And what, we ask you, is the good?

You scattered fifty yards of track;
He said "Dear, dear!" and put it back.
He neutralised your little plan,
This dauntless British Railwayman.

E.C.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

RHODESIA

Nominated Loading Days

Due to heavy demands on the Rhodesia Railways, arising from war conditions, it was decided recently to nominate certain days for the acceptance and despatch of general goods at Bulawayo and Salisbury. Investigations had shown that a considerable amount of wagon space was lost through goods being accepted on every working day for transport to various destinations, and for this reason the restricted acceptance has been introduced as a temporary measure. Perishable and express-delivery traffic is not affected by the new arrangement.

New Signal Box at Salisbury

The recent opening of a signal box controlling the western entrance to Salisbury Station marked a new stage in railway development in Rhodesia. The signal box, constructed of brick, with a tiled roof, houses a 48-lever frame, manually operated, with electrical indication for certain points. The area controlled covers the main line approach from Bulawayo and the service lines to private sidings north and south of the main line, also the access to the running shed and to the main station yard; signals are provided for both the admission and despatch of trains. This is the first large installation of its kind, and it is expected that further developments in signalling will be carried out at other stations on the system. The installation was arranged by the Signal & Telegraph Engineer, Mr. E. W. Dennison, under the supervision of the Chief Engineer, Mr. E. M. Rice.

CANADA

Jasper-Prince Rupert Services

To meet increased demands, two new passenger trains have been placed in operation on the Jasper-Prince Rupert line of the Canadian National Railways. Hitherto, the passenger service over the 720 miles between these points has been provided by mixed trains, but the new trains are equipped each with coaches, standard sleeping cars, and a cafe-lounge car.

C.N.R. Rolling-Stock Deliveries

The Chief of Motive Power & Car Equipment, Canadian National Railways, stated recently that several types of new equipment were being received from the builders by the C.N.R. Among recent deliveries of rolling stock were 24 "6200" class 4-8-4 locomotives by the Montreal Locomotive Works Limited, Montreal (out of 35 ordered); a completed order of 300 all-steel 30-ton flat wagons by the Canadian Car & Foundry Co. Ltd., Montreal; the first of 15 baggage vans by the National Steel Car Corporation, Hamilton; and 109 out of 700 all-steel 70-ton gondola wagons ordered from the Eastern Car Company, New Glasgow, N.S. The C.N.R. shops at Point St. Charles (Montreal) had built a total of 183 brake vans since June, 1941, and work on 67 more had been commenced. These new brake vans were necessary because of the greatly-increased number of freight trains in operation on the Canadian National Railways; many new conveniences had been incorporated in their construction. A considerable amount of conversion work was being carried out in the company's London and Winnipeg shops, where sleeping cars were being remodelled into day coaches. (Some details of rolling stock recently delivered to the C.N.R. were given also in THE RAILWAY GAZETTE of August 7, 1942, at page 126; and Mr. R. C. Vaughan, Chairman & President, described some of the new types of equipment designed by the C.N.R. to meet wartime requirements in a statement published in our December 18 & 25, 1942, issue.)

Locomotive Mileage Record

The Chief of Motive Power & Car Equipment, Canadian National Railways, stated recently that a record figure for monthly mileages was established last October by locomotive No. 6028, while operating the Continental Limited between Toronto and Armstrong. This engine travelled 18,353 miles, or an average of 592 miles a day, during the month concerned. He added that the Mechanical Department had every right to be proud of such a performance, particularly with the heavier trainloads imposed by war conditions. (A statement on mileages covered by C.N.R. locomotives operating passenger services last July was published in THE RAILWAY GAZETTE of October 16, 1942, at page 367; during that month the highest mileage attained was 16,340.)

UNITED STATES

The Erie Pays a Dividend

To the American public in general one of the most astonishing and almost humorous results of the present boom in traffic is that in 1942 the Erie Railroad has paid a dividend on its common stock. The astonishment is the greater in that by this action the Erie has broken a no-dividend record which has been maintained unbroken by this company and its predecessors for 76 years—since 1866. The 1942 dividend has been one of fifty cents, applying equally to common stock and to certificates of beneficial interest. It should be added, however, that, in the recent Erie reorganisation, certain fixed-interest obligations were exchanged for common stock and this fact doubtless has influenced the position.

Meeting Seat Shortage

Many expedients are being tried by American railways to meet the unprecedented demand for seating space in trains. Practically all the Pullman and lounge space previously provided in the principal trains now has been turned into booked seating, and many Pullman parlour cars have been converted into coaches, to increase their seating space. A number of cars which combined baggage space with a certain amount of seating space (like a British third class brake) have had seating and lighting installed in the baggage end, thus equipping them with seating accommodation throughout their length. An even bolder experiment has been that of the Pennsylvania Railroad in cutting five portholes in each side of a bogie freight car, and installing seats, lighting, a lavatory, steam heat, and passenger alarm-signal communication—a modern and rather more sophisticated development, in fact, of the *Hommes* 40, *Chevaux* 8 capacity which is a standard indication on French wagons.

Inter-Railway Safety Contest

For the first six months of 1942 the Union Pacific Railroad led the railways of the United States in Group A (lines which had worked an aggregate of more than 50,000,000 man-hr. in 1941) with only 2·89 accidents to staff per million man-hr.; the Chesapeake & Ohio Railway came second with 3·43, and the Norfolk & Western Railway third, with 3·85 per million. In Group B, comprising lines working between 20,000,000 and 50,000,000 man-hr. yearly, the Michigan Central Railroad came lowest, with a figure of 3·30, and the Wabash Railway second, with 4·24; in Group C (from 8,000,000 to 20,000,000 man-hr. yearly), the Duluth, Missabe & Iron Range Railway did well with 1·55 accidents only to every million man-hr. Some of the smaller lines had even better records than those, notably the Lake Superior & Ishpeming, in Group E (1,000,000 to 3,000,000 man-hr. yearly), and the Conemaugh & Black Lick, in the Switching and Terminal Group, both of which were able to present an absolutely clean sheet. The Ann Arbor Railroad (Group E) returned 2·91 and the St. Paul Union Depot (Terminal Group) 2·02 accidents a million man-hr. The accidents thus referred to are casualties sufficiently serious to cause a man to absent himself from work.

"Frozen" Railway Schedules

By an order of the Office of Defense Transportation, which became effective on October 4 last, the railways were forbidden to run any special passenger trains, or to add trains to the existing timetables, or to run extra sections of existing trains unless such additional portions have been run on at least 18 out of the previous 90 days in order to handle the normal flow of business; there was also a ban on the running of special cars restricted by previous reservation to the use of single individuals or parties. Exceptions to these rulings are extra sections of trains made necessary by reason of such emergencies as collisions, derailments, and breakdowns, public disasters, military necessity, Government direction or late running of connections, provided that the railway concerned reports within 48 hr. to the Director of the Division of Railway Transport, O.D.T., as to the reason for the extra train operation. The private cars run for the use of railway executive officers also are exempted.

SPAIN

New Decapod Locomotive

Trials were successfully carried out recently with the first of a new series of locomotives, to be known as the 5,001-5,020 Class, constructed by La Maquinista Terrestre y Maritima, of Barcelona, for the National Railway System. These locomotives, the first of their type to be constructed in Spain, have the 2-10-2 wheel arrangement. They are designed to develop 2,700 h.p. and weigh 140 tons in working order, with an overall length of 25·80 m. (84 ft. 8 in.). They are intended to work trains of 550 *tonnes* over grades of 1½ per cent. at 55 km.p.h. (34 m.p.h.).

Montserrat Mountain Railway Jubilee

October 6 last marked the fiftieth year of working of the rack railway from Monistrol to Montserrat. There is a difference of altitude of 600 m. (1,968 ft.), and the railway is 9 km. (5½ miles) long. The maximum gradient is 15 per cent., and the line is worked on the Abt rack system. Four of the engines with which the line was inaugurated are still in service.

The Zamora-Corunna Line

Since the completion of the great Esla viaduct (see THE RAILWAY GAZETTE of November 20, 1942, page 488) work has progressed on laying the track between the terminal station at Zamora and the viaduct, and this work is now nearly complete. Good progress has also been made with the rest of the section as far as Sanabria.

Manufacture of Precast Concrete Units for Railway Use

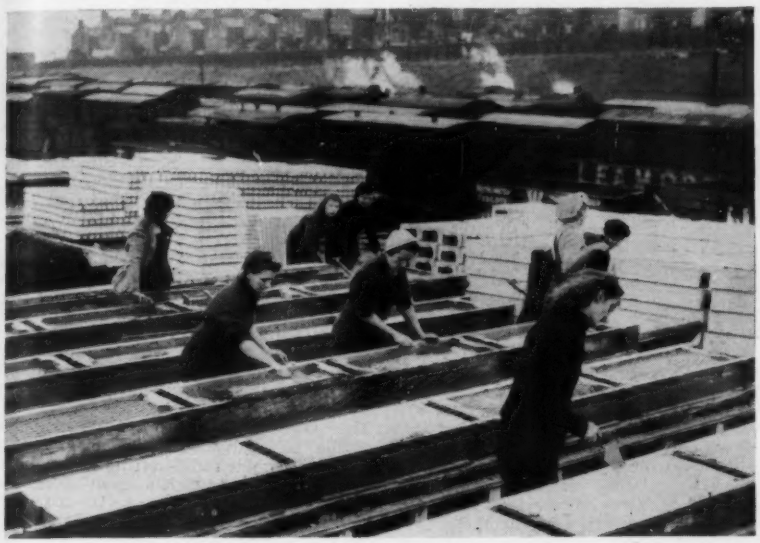
Women workers are taking a large part in the manufacture of articles produced at a Southern Railway concrete depot in the West of England

AMONG the many branches of railway work which are now being performed by women, in place of men who have been called to the Services, is that of the manufacture of precast concrete units. At a West of England depot of the Southern Railway a number of women have been employed for some time; they are now taking a large part in the manufacture of various articles produced at this works. A typical example of the work which is performed by women at this depot is that of a party of women workers under the supervision of one man, and which is engaged in the making up of $\frac{5}{16}$ in. dia. steel rods, lightweight expanded metal into reinforcement for sleeper blocks, fence posts, cable troughing and covers, point rod coverings, coal pen sections, platform walling brackets, and point rod trestles. A mixed gang which consists of five women and three men are engaged in the manufacture of cable troughs and covers, and coal pen sections, and are also producing unreinforced building blocks, both plain and rock-faced.

The women remove the mould sides as soon as the articles are sufficiently set, then clean, grease, and re-assemble them on a fresh bed ready to receive the reinforcement and concrete for another article. They help the men to fetch the newly-mixed concrete from the centrally placed mixer in low four-wheel trollies running on a 2-ft. gauge track, help in the filling of this concrete into the mould, and do the finishing off. The lifting of the finished articles from the beds is done exclusively by the men, as also is the stacking of the articles to season.

Parties consisting of varying numbers of men and women make sleepers and sleeper blocks, for which there is at present a very large demand, unreinforced and reinforced concrete drainage channels and covers, sections for portable huts, frames for the support of point rodding, point rod coverings, fence posts, platform walling brackets, slabs, and copings. In the manufacture of the last-mentioned articles, however, the fetching of the aggregate and its filling into the mould is exclusively carried out by the men members of the gangs.

The present staff at the depot totals about 100, of which nearly one-third are women, and the present output is of the order of 100,000 articles a year; approximately 1,000 tons of cement and 200 tons of reinforcement are used in their production.



Women at the mould frames in which the concrete mixture is set

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COLOUR-LIGHT SIGNALLING IN SPAIN.—The colour-light signalling system installed several years ago between Madrid and Villalba has now been extended to El Escorial, 51 km. (31¾ miles) from Madrid, on the Avila line.

Southern Railway women concrete workers at a West of England depot where they total nearly one-third of the entire staff. All but the heaviest tasks are performed by the women

A Universal Heavy-Duty Machine Tool for Railway Workshops

A boring machine that is equally suitable for surfacing, milling, drilling, and tapping

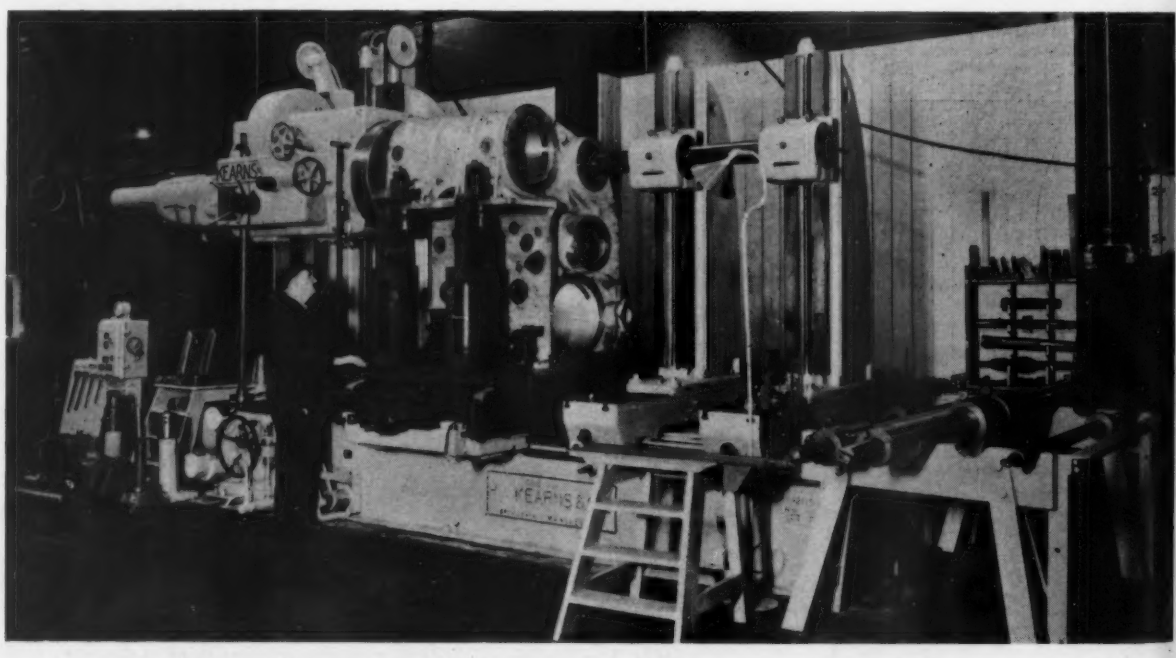
MULTI-PURPOSE machines are particularly valuable in shops where the work varies from day to day so that plant has to be adapted to meet a variety of requirements. These machines are also useful for carrying out a group of operations on heavy castings and other items which it would be costly to transfer and set up accurately on a succession of specialised machines. Locomotive manufacture and overhaul, and, to a lesser extent, carriage and wagon work, afford numerous instances where versatility in the machine tool can save labour, time, and money, besides leading to economy in workshop space and a reduction in capital investment.

The firm of H. W. Kearns & Co. Ltd. is well known for the manufacture of machine tools which readily lend themselves to widely-differing classes of work and on this page is illustrated a No. 5 Kearns Boring Machine engaged in one of several operations to be carried out in sequence on the cylinder block of a Class "U1" locomotive of the Southern Railway.

This particular type of machine is equally suitable for boring, surfacing, milling, drilling, and tapping. The outstanding feature of the machine is the provision of a travelling spindle coaxial with a facing chuck, but driven independently of it. This spindle is driven by a flat belt and can be run silently by itself at high speeds. Its longitudinal travel enables a sensitive feed to be provided for drilling, boring, and other operations. The facing chuck is driven quite independently by means of a pinion engaging a large spur-wheel on its back face, an arrangement which enables a very heavy driving effort to be transmitted, yet relieves the spindle of all torsional stress. Facing tools are carried on a tee-slotted facing slide, the motion of which provides the radial feed. The full range of feeds available to all other motions is also obtainable on this facing slide by a selective-gear arrangement. Similarly, the main table carrying the work can be given, when required, various rates of feed along the bed of the machine by means of the change-feed gearbox. This table is provided with a cross-traverse and also permits the work to be turned about a vertical axis when fresh faces are to be operated on.

The height of the spindle and facing chuck axis is adjustable and the boring stay is arranged to rise and fall simultaneously with the spindle slide. The longitudinal position of this stay on the bed is altered by means of a pinion-and-rack mechanism. The power and rigidity of the machine enable full advantage to be taken of tungsten-carbide rapid-cutting tools.

Considerable care has been taken to ensure a long working life to the machine. The bed, which is liberally strengthened by



Kearns No. 5 boring machine engaged in work on locomotive cylinder block

internal ribbing, has chill-cast working faces of the highest wearing quality. These are furthermore protected by cast-iron covers to exclude dirt and chips and the possibility of damage arising from heavy articles being dropped. The longitudinal screw and shaft are also protected.

The lubrication of the machine is ensured automatically, provided that the necessary sumps are kept filled. Lubrication to every part of the totally-enclosed spindle slide is by gravity from two tanks in the top of the slide, which are supplied by a pump driven from the spindle and drawing oil from a sump in the bottom of the slide. The various gear boxes, main-drive box, feed box, and so forth, are also enclosed, and the gears run in oil. Flingers are fitted to carry oil to the bearings.

Positive checks are provided against the simultaneous engagement of conflicting gears, and shear pins are provided to safeguard the working parts in the event of the standard traverses being over-run.

Two complete ranges of feed are obtainable with the mechanism provided on No. 4 and No. 5 size machines. One range consists of eight feeds taken from the spindle itself, and giving from 8 to 96 cuts an inch. The other range of feeds, taken from the first motion drive shaft, gives an advance of from 0·8 to 10 in. a min., quite independently of the spindle speed. Very fine feeds are obtainable with the highest spindle speeds and very coarse feeds with the lowest spindle speeds.

The No. 5 machine is one of a range of somewhat similar machines, all capable of undertaking surfacing, boring, milling, drilling and tapping. Principal particulars of these machines are given below, but it is understood that not all these sizes are being made during the war.

PRINCIPAL PARTICULARS OF DIFFERENT SIZE MACHINES

Size No.	2	3	4	5	5W8
Dia. of travelling spindle, in. ...	3	3½ or 4	4, 5 or 6	5 or 6	6
Max. dia. machine will face, in.	30	42	54	54	54
Max. distance from centre of spindle to main table, in. ..	29½	34	44	50	68
Size of main table, in.	48 × 30	60 × 36	66 × 42	84 × 48	120 × 60
Size of detachable turntable, in.	36 × 36	42 × 42	48 × 48	60 × 60	84 × 60
Longitudinal traverse of tables (stay on), in.	39	45	51	66	72
Transverse traverse of tables, in.	37	48	54	68	102
Max. distance between facing slide and stay	5 ft. 6 in.	6 ft. 9 in.	7 ft. 9 in.	9 ft. 6 in.	12 ft. 6 in.
H.p. required	10	12½	15	20	25
Floor space required	17 ft. 6 in. × 8 ft. 7 in.	19 ft. 6 in. × 10 ft.	21 ft. × 12 in.	23 ft. × 13 ft. 9 in.	26 ft. × 19 ft. 6 in.
Approx. net weight, cwt. ...	165	225	388	452	630

It is one of the main advantages of the machine that it will carry out facing and boring or drilling operations simultaneously, due to the provision of independent drives and feeds to the facing chuck and the spindle.

Our other illustration shows one of the smaller machines working on an axle box in another engineering shop of the Southern Railway.

L.N.E.R. School for Signalwomen

Practical and theoretical training for wartime staff

More and more women are being employed by the L.N.E.R. as a result of the release of thousands of male employees and many jobs which traditionally have been masculine preserves are now being done, and done well, by female staff. Women platelayers, painters, billposters, porters, locomotive cleaners, and many others all play their part.

Some classes of employment call for little in the way of special training; some for quite a lot. Signalwomen, for instance, have to undertake weeks of careful training before they can be declared fit to operate the complex tasks on the skilled execution of which depends the safety of trains and of the public.

It is for this reason and purpose that the L.N.E.R. has established a school for signalwomen at Leeds Central Station. Although at other points provision is made for periods of instruction, the Leeds experiment is believed to be the first full-time every-day-of-the-week attempt to bring the would-be signalwomen together to receive their training. District Inspector Parkinson is in charge of the experiment and the classes are taken by Mr. A. Robinson, who has had 43 years railway service, the greater part of it in the grades of signalman.

The course is both theoretical and practical; the classes attend from Monday to Friday each week, and on Saturdays the women go to signalboxes to observe the actual working of the theory they have been taught, and to notice how the many things which need to be done are done with speed and accuracy, so that there may be no delay to freight trains conveying munitions of war and no danger to passenger trains.

Some of the women who are being taught signalmen's duties at the L.N.E.R. school at Leeds

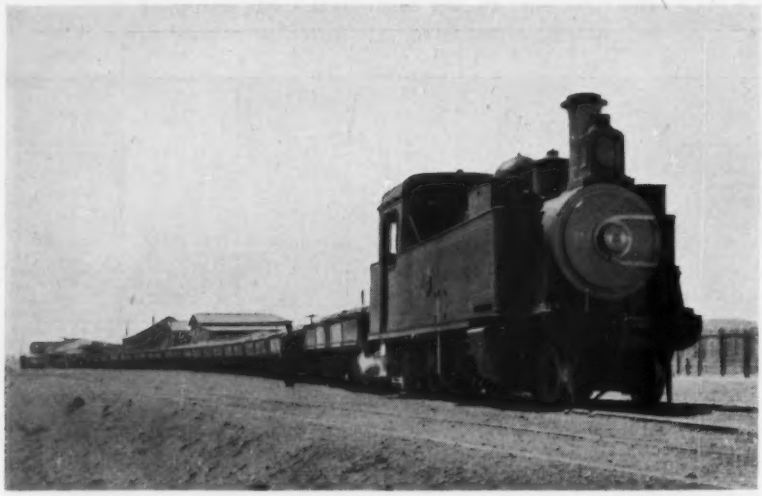
Photo] [*Yorkshire Evening News*

THE RAILWAY CLUB.—The next meeting of the Railway Club has been arranged for Saturday, March 13, at the club premises, 57, Fetter Lane, E.C.4, at 2.30 p.m. Mr. Kenneth Brown, the President, is to present a paper entitled "Out of the Blue: a Desultory Talk on Parliamentary Papers."

CORPORATION PURCHASE OF BUS BUSINESS FORBIDDEN.—Mr. Justice Bennett ou December 21 delivered a reserved judgment in an action in which the Attorney-General, at the relation of the Birmingham & Midland Motor Omnibus Co. Ltd., claimed an injunction to restrain Leicester Corporation from purchasing and operating the motor-bus business of Mr. J. H. Hutton, who worked a daily service of buses between Leicester and Newton Linford, a village some three miles outside Leicester. The corporation had resolved to pay for the business out of the reserve fund of its tramway undertaking, which it had power to use for the improvement of that undertaking. Its powers regarding the tramway system were expressly confined to the city boundaries and to two routes outside, which did not include the Leicester-Newton Linford route. His Lordship held that the corporation was not entitled to apply any part of that reserve fund towards buying Mr. Hutton's business, and there would be a declaration to that effect.

The Taltal Railway

A Chilean line which is concerned mainly with the transport of nitrate and certain other commodities



Train of gold and copper ore from Guanaco mines at Catalina Station, en route to the port of Taltal

THE Taltal Railway is located within the so-called "rainless belt" and serves the department from which it takes its name in the southern part of the province of Antofagasta, in North Chile. Its principal source of revenue is the traffic provided by the nitrate industry, and it is the only railway connecting the territory through which it runs with the port of Taltal. It connects with the Northern Longitudinal Railway at Catalina. The company is British-owned and has a fully-paid-up share capital of £1,200,000. The General Manager is Mr. T. C. Thompson.

Map showing the Taltal Railway and its connection with the Northern Longitudinal Railway

Mileage, Gauge, and Rolling Stock

The line was opened for traffic on October 20, 1882, and the company now owns 160 miles of single track (including 68 miles of branch lines); the gauge throughout is 3 ft. 6 in. Rolling stock comprises 40 locomotives, 18 carriages, 1,056 goods vehicles, one motor railcar, and one ambulance car. All-steel 18-ton medium-sided double-bogie wagons, of which there are 635 in service, are used for the transport of coal, nitrate, and mineral ore; and for the conveyance of fuel oil there are 35 tank wagons of 13 tons capacity each.

Goods Traffic

Apart from nitrate, the Taltal Railway is concerned with the carriage of coal, mineral ore, and fuel oil, as already indicated, and of foodstuffs and gold, the latter from a mine about 80 miles from Taltal. Trains loaded with coal, fuel oil, and foodstuffs constitute the main traffic in the inland direction, and the chief commodities conveyed down to the port are nitrate, gold, and mineral ore.

Harbour Facilities

The company owns two moles at Taltal, from which the shipping capacity is 3,000 tons a day outwards, and 700 tons a day inwards. Nitrate and mineral ore are gravity-loaded into lighters by means of chutes. Discharge from the lighters is performed by four gantry cranes, each of 30 cwt. capacity. The Taltal Railway has two tanks for the storage of fuel oil, which hold together 4,000 tons; it owns also a water pipe-line, 112 miles in length, leading from the foothills of the Andes down to the port.

Production and Shipment of Nitrate

The nitrate handled by the Taltal Railway is shipped mainly to the United States and Egypt; shipments are arranged by the Chilean Nitrate Sales Corporation. Only three nitrate plants are producing at present: that of the Lautaro Nitrate Company, at Santa Luisa (2,500 tons a month); that of Gianoli, Mustakis & Company, at Flor de Chile (2,000 tons a month); and that of the Esperanza Nitrate Company, at Esperanza (1,500 tons a month).

The following table shows the production of nitrate and the amount transported in the Taltal district during the thirteen years to 1942:—

	Production tons	Transported tons
1929-30	199,400	160,300
1930-31	159,900	92,400
1931-32	61,000	77,400
1932-33	41,000	49,150
1933-34	41,600	70,450
1934-35	42,900	91,000
1935-36	57,770	87,300
1936-37	65,330	69,100
1937-38	57,770	61,230
1938-39	52,130	54,110
1939-40	40,490	39,200
1940-41	67,590	38,010
1941-42	70,610	82,840

The estimated stock of manufactured nitrate in the interior on June 30, 1942, was 34,370 tons, compared with 46,600 tons at the close of the previous financial year.

During the year ended June 30, 1942, 4,010 tons of gold and copper ore together were carried down to the port by the Taltal Railway, compared with 4,960 tons during the year ended June 30, 1941. Three tons (10) of hides, five tons (23) of iodine, 14 tons (24) of baggage, and 1,860 tons (290) of miscellaneous goods also were conveyed. In the inland direction, 319 tons (1,380) of gold and copper ore, 4,980 tons (7,880) of coal, 9,490 tons (7,930) of fuel oil, and 2,106 tons (1,340) of miscellaneous goods were carried, as well as timber, hay, barley, provisions, flour, machinery, and baggage.

Large covered wagon-storage shed capable of holding 135 wagons equalling 2,500 tons of nitrate

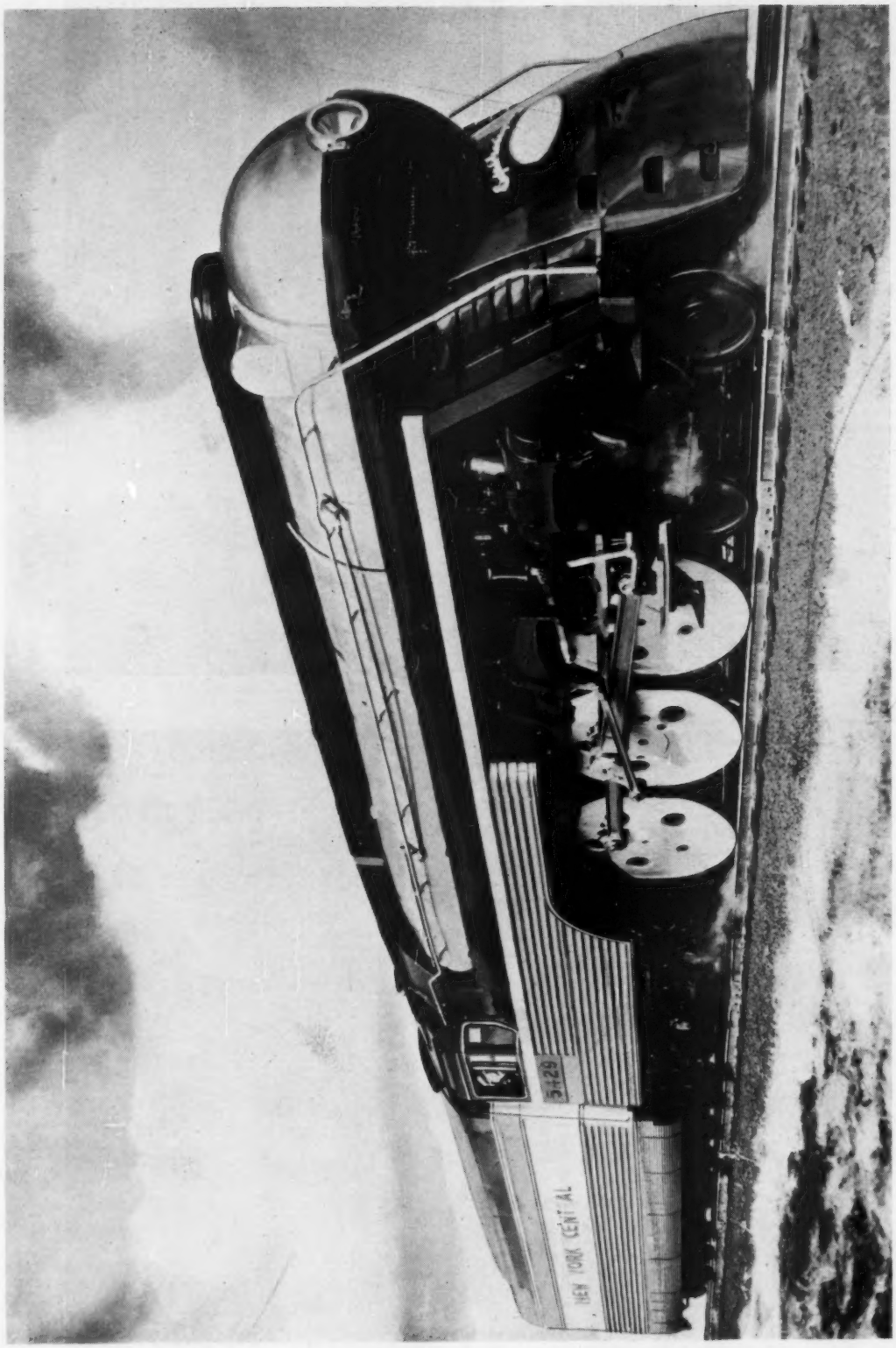
A train of loaded coal wagons on the Taltal Railway passing the General Manager's house

Bulk nitrate awaiting shipment at the port of Taltal, also Mole No. 2. Large covered storage shed in foreground

Kitson-Meyer locomotive shunting back wagons of sacked nitrate into large covered storage shed

Mole No. 1, showing General Manager's residence on left and headquarters offices on right

SOME SCENES ON THE TALTAL RAILWAY



Hudson (4-6-4) type express locomotive No. 5429 of the New York Central System, specially streamlined for working the Empire State Express between New York and Buffalo

RAILWAY NEWS SECTION

PERSONAL

Mr. Percy J. Baird has been appointed a Director of Rhodesia Railways Trust Limited.

Mr. T. F. Mitchell, A.M.I.Mech.E., District Locomotive Superintendent, Plaistow, L.M.S.R., who, as recorded in our December 18 & 25, 1942, issue, has been appointed District Locomotive Superintendent, Wakefield, entered the service of the former Lancashire & Yorkshire Railway in October, 1911, and received his early training with that company. In May, 1922, he was appointed Locomotive Foreman, Accrington; and in November, 1928, he became Running Shed Foreman, Aintree. On January 1, 1934, Mr. Mitchell was made Assistant District Locomotive Superintendent, Bank Hall (Liverpool); and in June, 1936, he was made Assistant to the Superintendent of Motive Power, Euston. His appointment as District Locomotive Superintendent, Plaistow, dated from June, 1940.

Mr. T. F. Mitchell

Appointed District Locomotive Superintendent, Wakefield, L.M.S.R.

The Railway Executive Committee has appointed Mr. K. W. C. Grand, Assistant General Manager, G.W.R., as Liaison Officer to the G.W.R. Home Guard. The appointment has been approved by the Director-General of the Home Guard, Major-General Lord Bridgeman, D.S.O., M.C.

Mr. H. T. Penny, General Agent for Scotland, Canadian Pacific Railway, has been appointed Chief Assistant to the European Manager, in succession to Mr. S. L. Furniss, who retired last December. Mr. Penny is succeeded by Mr. A. J. Fyfe, Chief Assistant to the General Agent for Scotland.

Mr. P. Anstey, a member of the staff of the Chief Staff & Establishment Officer, has been appointed Centre Ambulance Secretary, G.W.R., in succession to Miss C. A. Ault, who, as recorded in our October 16 issue, has retired.

Mr. G. Wynne Davies, as recorded in our January 8 issue, has been appointed, as from January 1, Assistant Secretary to the Southern Railway Company, the position occupied up to the outbreak of the war by Mr. T. E. Brain, the present Acting Secretary. Mr. Wynne Davies was educated at Repton and at Clare College, Cambridge, where he obtained an M.A. degree. He entered the company's service in December, 1927, in the Chief Operating Superintendent's Office, and shortly afterwards was appointed a cadet. On January 1, 1932, he became Assistant to the Chief of the Road Transport Section of the General Manager's Office (afterwards Road Transport Liaison Officer). On May 1, 1935, Mr. Wynne Davies was made an Assistant to the London (East) Divisional Superintendent, and, on January 1, 1938, he returned to the General Manager's Office as General Purposes Officer. He was transferred to the Secretary's Office as a committee clerk on January 1, 1939. Since the outbreak of war, Mr. Wynne Davies has been on military service, during the course of which he has attained the rank of Lt.-Colonel.

Mr. G. Wynne Davies

Appointed Assistant Secretary, Southern Railway Company

We regret to record the death of the Rt. Hon. George Perry Graham, at the age of 83, who was Canadian Minister of Railways & Canals, from 1907-11, and also from 1923-26.

On January 11 at Paddington Station in the presence of Mr. K. W. C. Grand (Assistant General Manager), Mr. S. G. Hearn (Assistant Superintendent of the Line), Mr. Hurford (Acting Publicity Officer), Mr. G. E. Orton (Commercial Assistant to the Superintendent of the Line & Public Relations Officer), and a numerous gathering representing all departments, Mr. Gilbert Matthews, Superintendent of the Line, presented Mr. George Dyall, who recently retired from the post of Acting Publicity Officer after 45 years' service, all spent in the Advertising Office, with a cheque for £25 as an appreciation from his colleagues.

Mr. J. Ness, Assistant Divisional General Manager, Scottish Area, L.N.E.R., who, as recorded in our January 8 issue, has been appointed Assistant Divisional General Manager, North-Eastern Area, began his railway career in Scotland and then moved south to the North Eastern Area and to the Chief General Manager's Office. In 1929 he became Head of the Dock Section in the District Goods Manager's Office, Hull, and in 1932 he returned to Scotland as Chief Assistant to the District Goods & Passenger Manager at Dundee. In 1935 he was transferred to the Company's Scottish headquarters in Edinburgh and in 1937 was appointed Assistant to the Divisional General Manager (Traffic) Scottish Area. Mr. Ness became Assistant to the Divisional General Manager, Scottish Area, in 1939, and in 1940 he was appointed Assistant Divisional General Manager, Scottish Area.

Mr. J. Ness

Appointed Assistant Divisional General Manager, North-Eastern Area, L.N.E.R.

We regret to record the death on January 17, after a short illness, of General the Hon. Herbert A. Lawrence, G.C.B., He was Chairman & Managing Director of Glyn Mills & Company. He was one of the Directors of the former Midland Railway Company to be elected to the first board of the London Midland & Scottish Railway Company, and remained on the board of that company until his death. He was also a Director of the Central London Railway Company before its absorption into the L.P.T.B. In 1925 he was Chairman of the Coal Commission.

Mr. J. F. McCormick, Chief Clerk to the General Manager, Great Northern Railway (Ireland), who, as recorded in our November 20 issue, has been appointed Assistant to the General Manager, was educated at Ranelagh School, Athlone, and entered the company's service in 1906 in the Secretary's Department. He was transferred in 1908 to the Chief Engineer's Department, and was appointed Staff Clerk in 1912; Maintenance & Accounts Clerk in 1918; and Chief Clerk in 1933. In the latter capacity he was associated closely with the reorganisation of the department carried out before

Lafayette [*Dublin*

Mr. J. F. McCormick

Appointed Assistant to General Manager, Great Northern Railway (Ireland)

the war. He also gained valuable experience as a member of several commissions appointed by the directors to investigate the working of various departments of the railway. Mr. McCormick was appointed Chief Clerk to the General Manager in 1940.

Lt.-Colonel Kenneth R. N. Speir, D.S.O., who has been appointed Secretary of the Transportation Club, of which details appeared in our issues of January 8 and 15, retired from the position of Assistant to Chief Commercial Manager (Overseas & Continental Traffic), L.M.S.R., on December 31 last. Colonel Speir was educated at Radley and Pembroke College, Cambridge. He served an apprenticeship in the locomotive and electrical shops of the Midland Railway, under the late Mr. S. W. Johnson, and in 1902 was appointed to take charge of the experimental and investigation office associated with Derby Locomotive Works. In 1904, he became an Assistant to the Electrical Engineer. In 1905, he was appointed Secretary-General to the Egyptian State Railways, but in 1908 returned to England to take up an appointment as Assistant to Sir Cecil W. Paget, Chief General Superintendent. In 1914, Colonel Speir became Superintendent of Operation. In 1919, he was appointed Superintendent of Operation in charge of the London, Tilbury & Southend section. In 1924, he went to Paris as General Passenger Agent to the company in that city, and in 1927 he was appointed Passenger Assistant to the Continental Traffic Manager in charge of the then newly-established Continental Department of the L.M.S.R. He became Overseas & Continental Traffic Assistant to the Chief Commercial Manager on the promotion of Mr. A. W. Barrett in May, 1935. Colonel Speir served with the Imperial Yeomanry in the South African War, and in the war of 1914-19 with the Royal Engineers, and was second in command of the R.O.D. He received the Distinguished Service Order, was three times mentioned in dispatches, and was made a Chevalier of the French Legion d'honneur ; on the termination of hostilities he was gazetted to the Regular Army Reserve of Officers with the rank of Lt.-Colonel.

L.N.E.R. Appointments

The L.N.E.R. announces that Mr. G. Marshall has been liberated from responsibility for the goods and mineral work of the Southern Area so that he may take up the appointment of Chairman of the Goods Committee constituted by the Railway Executive Committee. Mr. Marshall will also be the Liaison Officer between the L.N.E.R. and the Directorate General of the Home Guard. Mr. C. K. Bird, Assistant Divisional General Manager, Southern Area, has been appointed Acting Goods Manager, Southern Area.

The following appointments have also been made :—

Mr. E. W. I. Arkle, Assistant Goods & Passenger Manager, North Eastern Area, to act as Assistant Divisional General Manager, Southern Area.

Mr. A. E. H. Brown, District Superintendent, Newcastle, as Assistant Divisional General Manager, Scottish Area.

Mr. D. Murray, District Goods Manager, Hull, to act as Assistant Goods & Passenger Manager, North Eastern Area.

Mr. L. Sproat, District Superintendent, York, as District Superintendent, Newcastle.

Mr. H. F. Pallant, District Superintendent, Nottingham, as District Superintendent, York.

Mr. W. Naylor, Assistant to Locomotive Running Superintendent, North Eastern Area, to act as Assistant Rolling Stock Controller.

Mr. A. J. Johnson, Yardmaster, Hull, as Assistant District Superintendent, York.

Mr. C. H. Lott, of the District Superintendent's Office, Darlington, to act as Assistant to District Superintendent, Sunderland.

Mr. H. J. G. Francis to act as Commercial Advertising Agent.

Mr. C. P. Hopkins, Assistant Rolling Stock Controller, York, has been appointed Rates & Statistics Assistant to the Chief General Manager, L.N.E.R., in succession to Mr. E. A. W. Dickson, who was recently appointed Assistant Secretary of the company (not Secretary as was stated as a result of a printer's error in our last week's issue).

Mr. S. Mason

Appointed Secretary, Irish Railway Clearing House Committee

Mr. S. Mason has been appointed Secretary to the Irish Railway Clearing House Committee from January 1, 1943. He joined the service of the Clearing House in January, 1902, and was attached to the Merchandise Department until November, 1917, when he was transferred to the Secretarial Department. Since January, 1925, Mr. Mason was Assistant to Mr. W. E. Richardson, the late Secretary. He was also Assistant to Mr. Richardson when the latter was acting as Secretary to the Standing Committee of General Managers during the years 1920 and 1921.

We regret to record the sudden death in Edinburgh, on January 9, of Mr. George Louis Kirkpatrick, M.I.E.E., Managing Director of Bruce Peebles & Co. Ltd.

Lt.-Colonel K. R. N. Speir, D.S.O., who has retired from the position of Assistant to Chief Commercial Manager (Overseas & Continental Traffic), L.M.S.R., and has been appointed Secretary of the railway-sponsored Transportation Club for American and Canadian Officers

TRANSPORT SERVICES AND THE WAR—174

Civilian Air Raid Casualties in December

The Ministry of Home Security has announced the following figures of civilian casualties due to air raids in the United Kingdom during the month of December :—

Killed (or missing, believed killed)	109
Injured and detained in hospital	201

The casualties are classified as follow :—

	Men	Women	Under 16
Killed (or missing, believed killed)	40	51	18
Injured and detained in hospital...	60	121	20

Flat-rate System on Railways

In order to save manpower and cut out avoidable book-keeping, a system of flat rates, analogous to those which the railway companies are permitted to charge by agreement with traders under the Road & Rail Traffic Act of 1933, was applied from October 1, 1941, to traffic carried by merchandise train on the account of certain Government Departments. This subsequently was applied to merchandise train traffic of most other Departments, and is now being extended to merchandise traffic by passenger train. Under this system, each Department has a separate flat rate per ton, irrespective of distance conveyed or description of traffic, which is applicable to all controlled railways.

Although the flat rates are per ton, irrespective of distance conveyed or description of traffic, all those concerned with the consigning of traffic on Government account have strict instructions that any comparison between the amount of the flat rate and the cost of carriage by other forms of transport must be disregarded in deciding which method of transport should be used, and that the only criterion in present circumstances is whether consignment by rail or other transport makes the best use of available facilities.

A committee of the Ministry of War Transport called the Charges (Vigilance) Committee exists to draw attention to any tendency to divert traffic undesirably from or to the railways as a result of the system of flat rates and to suggest such remedial measures as it thinks desirable and practicable. The members of the committee are drawn from the Railway, Road Transport, Canal, Coasting & Short Sea, and Charges Divisions of the Ministry, and their contacts with the various forms of transport enable them to ensure that any cases in which investigation seems necessary are brought to the committee's notice. In the light of experience to date, the committee has no reason to think that the system of flat rates is causing any undesirable diversion of traffic.

One Way Traffic Abandonment

It has been decided by the streets committee of the Glasgow Corporation to abandon the one way traffic arrangements on 12 streets. In addition, three sets of automatic traffic signals will be taken out of service because of the wartime reduction in traffic. As long ago as July 22 last Mr. P. J. Noel-Baker stated in the House of Commons that arrangements had been made to review existing one way streets and roundabouts to determine which of them might be abolished with advantage. (See editorial note, p. 82.)

Escalator Fuel Economy

In order to save fuel, "down" escalators at some of the less busy Underground stations of London Transport are to cease to run during slack hours. By this means 600 tons of coal a year will be saved. The escalators are :—

Bakerloo Line
- Warwick Avenue
- Maida Vale
- Kilburn Park
- Baker Street (upper flight from street)

Piccadilly Line
- Southgate
- Bounds Green

Northern Line
- Archway (Saturdays excepted, 10 a.m. to 4 p.m.) (Sundays 6 a.m. to 2 p.m. only)
- Kentish Town
- Warren Street (lower flight only)
- Oval
- Stockwell
- Clapham North
- Clapham Common
- Clapham South
- Balham
- Trinity Road
- Colliers Wood
- South Wimbledon

Northern City Line
- Moorgate (lower flight only)

Central Line
- St. Pauls (lower flight only)
- Chancery Lane (lower flight only)
- Shepherds Bush (Sundays only, 6 a.m. to 2 p.m.) (not Saturdays excepted)

All these escalators will continue to be operated on Saturdays, except where shown otherwise, but, apart from those specially indicated, they will not be worked at all on Sundays.

RESERVATION OF SEATS
BY
HOTEL AND RAILWAY PORTERS

By direction of the Minister of War Transport, no Hotel Porter or Railway Porter may reserve a seat in a railway carriage by placing luggage, or any other article, thereon, unless the Passenger who intends to occupy that seat is present when the luggage or other objects are placed thereon.

The expression "Railway Porter" includes any uniformed member of Railway Stations' Staff.

RAILWAY EXECUTIVE COMMITTEE

R.E.C. poster notice of the Ministry of War Transport direction which was recorded in our December 18 & 25 issue

Conductress Transfer Proposal

The recent proposal by the Ministry of Labour to transfer 10 conductresses from the service of the Portsmouth Corporation Transport Department to that of the City of Oxford Motor Services Limited has caused the executive council of the Municipal Passenger Transport Association and the National Joint Industrial Council for the Road Passenger Transport Industry to express grave concern. The Portsmouth Corporation has been informed that no mobile conductresses will be transferred until suitable substitutes have been found and a reasonable time allowed for training such substitutes.

Clonsast Bog Railway

It is reported from Eire that a new four-mile section of railway was brought into use during December, connecting the Clonsast Peat Development Works (Portarlington) with the main line of the Great Southern Railways at Kylemalogue. It is

LONDON SUBURBAN BUSES FITTED WITH SNOW PLOUGHS

Some London Transport buses in service on the outskirts of the Metropolis have been fitted with snow ploughs for use in the event of a heavy fall of snow. Above: Lowering the snow plough into position on a bus. Right: The plough in "action" position

A train-load of Churchill tanks in an L.M.S.R. siding

stated that the material was obtained from an abandoned portion of the Londonderry & Lough Swilly Railway. Peat development is of vital importance to Eire in wartime conditions, in view of the acute shortage of imported coal and liquid coal.

The Transport Experiment in Eire

In order to record the effect of the virtual transport monopoly in North Mayo granted in wartime circumstances to the Great Southern Railways, the *Irish Times* sent a special representative there recently, and his experiences have now been published in two articles. The present arrangements, which came into force on December 7 last, were described in our issue of December 4, pages 538 and 557. It seems that, for the community as a whole, the outstanding result is that the road freight service in the area is now carried by 15 G.S.R. lorries in bright red livery, and about 20 exempt private lorries (bakers, milkmen, builders, and nine licensed hauliers), though in November last there were about 80 lorries and vans actively operating. Moreover, in place of the former irregular services given by private distributors, there are now 11 regular services established, some running every day and some on two or three fixed days of the week. Goods may be sent on these services at prices which are from 10 to 20 per cent. cheaper than the previous G.S.R. rates, and in some cases are so low that licensed hauliers with much smaller overhead costs say they cannot compete and are afraid that eventually they may be forced out of business. An example of the rates is the cost of a load of 3 tons from Ballina to Belmullet, a distance of 40 miles. The old rate was 17s. 7d. a ton, and the new rate is 15s. 4d. The G.S.R. has not found it necessary to take over any of the private lorries in the district, and has employed only two of the drivers formerly in private haulage service.

War Effort of the Rhodesia Railways

Mr. W. J. K. Skillicorn, General Manager of the Rhodesia Railways, stated recently that 530 employees had been released for full-time service with the Forces, and of these 19 had been killed, or had died, and 37 had been demobilised and had returned to their railway duties. The number released represented 15 per cent. of the total pre-war male staff; over 40 per cent. of the male clerical staff were on active service. Women had represented 17·6 per cent. of the total clerical staff before the war, and they now represented over 42 per cent. Although traffic had increased considerably the total European staff (excluding those on active service) was now 116 lower than in September, 1939 (3,719 as against 3,835). Many railwaymen were serving in part-time military units, and in the police reserve, out of working hours.

Road Transport Economy in New Zealand

At the end of last year, it was stated in Wellington that the transport reorganisation undertaken three months earlier to meet the tyre shortage had saved 25,500,000 vehicle-miles, representing 2,500,000 gal. of petrol and more than 6,000 commercial tyres.

Length of Trains in U.S.A.

The number of carriages or wagons that make up the permitted length of a train in the United States is restricted by individual State laws, which vary considerably as between one State and another. In the past, these laws have been determined mainly by considerations of long and severe gradients through mountainous country, and by differing local interpretations of what is a safe load. The Interstate Commerce Commission, acting on behalf of the Federal Government, has now laid it down that these rules are to be disregarded by the railways concerned during the present emergency, in order to reduce the wasteful use of locomotive power and to speed-up transport.

U.S.A. Co-ordinated Schedules

Additional co-ordinated passenger rail transport to meet the requirements of essential wartime travel between the Middle West, Florida, and intermediate territory during the winter season was inaugurated on December 17, according to an announcement made with the approval of the Office of Defense Transportation by the three principal Chicago railways serving Florida and the south-east, namely, the Chicago & Eastern Illinois, the Illinois Central, and the Pennsylvania. A one-night-out daily Pullman-coach train leaves Chicago at 9.35 a.m., with arrivals in Jacksonville (Florida) at 1.50 p.m. and Miami at 10.15 p.m., the next day. The departure from Miami is at 10 a.m. and from Jacksonville at 6.30 p.m., with arrival in Chicago at 8.40 p.m., the next day. The trains operated in this co-ordinated service are the Jacksonian of the Pennsylvania; the Dixieland of the Chicago & Eastern Illinois; and the Sunchaser of the Illinois Central. The all-the-year two-night-out trains, the Seminole, the Southland, and the Dixie Flyer, continue to operate on slightly revised schedules, providing through sleeping car service to Jacksonville and the West Coast of Florida. The all-coach streamliners, the South Wind, the Dixie Flagler, and the City of Miami, continue to be operated on their previous schedules. Co-operating with the three Chicago railways in providing the seasonal service are: the Louisville & Nashville; Central of Georgia; Atlantic Coast Line; Nashville, Chattanooga & St. Louis; Atlanta, Birmingham & Coast; and the Florida East Coast railways.

Crop Movements in Mexico

An Executive Resolution of September 22 last ordered the National Railways of Mexico to give priority in distribution of railway goods wagons to the transport of essential foodstuffs, particularly in certain agricultural regions. The Ministries of National Economy, of Transport, and of Public Works, are required by this Decree to ensure that the National Railways of Mexico comply with its provisions.

Refrigerated Cars in Canada

The Canadian Transport Controller, in an Order of December 1 published in the *Canada Gazette*, has imposed new regulations to ensure efficient use of railway refrigerated cars. Persons who hold such vehicles beyond specified times will be liable, in addition to the usual demurrage rates, to penalties of $5 for the first 24 hours, $10 for the second, and $15 for the third and succeeding 24 hours. The penalties do not apply at ports on the coast or St. Lawrence River. The Order also prohibits the acceptance by any person of a refrigerated car loaded with fresh fruits or vegetables unless it is loaded to a specified minimum weight.

Bus Travel Limitations in Canada

Instructions issued by the Canadian Transit Controller, which became effective on November 15 last, place stringent limitations on bus travel so as to conserve petrol and rubber. In general, a single journey of more than 50 miles may no longer be made by bus, although a 50-mile round trip is permissible. Where buses provide the sole means of transport, or where other means are particularly inconvenient, exceptions are made to the general order.

It is expected that this order will result in a substantial reduction in bus mileage. Operators were invited to submit their own proposals as to revised and reduced schedules. Irrespective of length, any bus service which duplicates other transport services must be discontinued, with the exception of local routes supplying essential services.

Turkey and Switzerland by Rail

Although direct rail transport between Turkey and Switzerland has been possible since the reconstruction of the Istanbul-Svilengrad railway, neither Turkey nor Bulgaria has available the rolling stock for through transport from Turkey to Switzerland. Accordingly, reliance has to be placed largely on Italian wagons, permission to use which has to be obtained from the German authorities. The Berlin headquarters (Gbl South-East) of the General Operational Management (the operations of which we described in our issue of June 19, 1942, page 684) authorises

the transport of goods through the German occupied or controlled territories concerned, and prescribes the route to be used.

Roumanian Trains Snowed-up

It was reported on January 13 that railway communications in Roumania had been held up for two days by the heaviest snowfall for 50 years. Snow is said to have blocked the railways linking Bucharest with Giurgin, Craiova, and Constanza. Lengthy delays are recorded on the Bucharest—Arad main line.

New Ploesti-Targoviste Line

A railway from Ploesti to Targoviste (an important town on the Titu-Pietrosita branch of the Bucharest-Timishoara main line), 30 miles long, planned in 1928, and partly constructed before the war, is now being completed. About 15 miles were in a far advanced state of construction when the war stopped the work, and 180 million Lei had then been spent. It is stated that the completion will need another 220 million Lei. The line is expected to be ready in April, 1944.

French Railwaymen's Rations

The Vichy radio stated recently that French engine drivers and firemen are to receive extra rations of bread and meat. Food rations in Germany and occupied territories are often graded according to the class and war importance of particular types of employment.

Closing Paris Metro Stations

It is reported that 30 of the Paris Metro stations were closed to the public on Monday January 11, in order to save electricity. It may be recalled that similar steps have been taken in previous winters.

A further statement, on the Vichy radio last weekend, said that an additional 29 Metro stations were about to be closed.

A message dated January 20, 1942, recorded the closure of 25 Metro stations, and we referred to the subject in greater detail at page 371 of our issue of March 13 last.

Marseilles Tram Fare Experiment

It is reported that last winter the Marseilles Tramways introduced increased fares at busy times of the day, namely, during lunch hours, and between 6 and 7.15 p.m. Workers were naturally the chief sufferers. As rates were not increased on a uniform basis, some routes tended to be overcrowded, and others sparsely used. The experiment was not successful, and was discontinued on May 25 last. Marseilles was, of course, then in unoccupied-France. It is now in German hands since the complete occupation of Vichy-France.

Italian Tramway Improvements

The Milan Tramways Administration has built and placed in operation five small three-car trains to provide for increased wartime traffic. Each unit is 19·75 metres (64 ft. 10 in.) long and 2·35 metres (7 ft. 9 in.) wide, and has seats for 46 passengers and standing room for 175.

A new type of tramcar, built by the Fiat Works, has been placed in service by the Turin Tramway Company. The new unit is stated to be 45 ft. long and to carry 110 passengers. A combination of spiral springs and rubber is used to ensure good suspension and reduction of noise. The maximum speed of the vehicle is 60 km.p.h. (37 m.p.h.).

New South American Transcontinental Railway

Shortage of ocean shipping, and the wartime dangers encountered by ships at sea, even on coastal service, have directed the attention even of non-belligerent countries to the need for improving overland transport, and the subject is very much to the fore in South America. The Andes form a formidable barrier between Argentina and Chile, and in peacetime the various schemes for increased railway facilities between the two countries would probably have lain dormant for years, but, under the urge of wartime conditions, rapid progress is now being made with a new rail link. It will join Antofagasta, the second most important port of Chile, with Salta, in north-west Argentina, as shown on the accompanying sketch map. Such a railway was proposed as long ago as 1898.

The distance between Antofagasta and Salta along the projected route is some 562 miles, of which 205 miles are in Chile and 357 miles in Argentina. In Chile the route uses the line of the Antofagasta (Chili) & Bolivia Railway Co. Ltd., from Antofagasta to Augusta Victoria, some 157 km. (97 miles) in length, which has been open to traffic since 1913. This is of metre gauge, and the extension from Augusta Victoria to the frontier between Argentina and Chile at the Socompa Pass, which is being undertaken by the Chilean Government, will be of the same gauge.

This branch of the Antofagasta (Chili) & Bolivia Railway thus provides approximately one half of the mileage in Chile of the new route between Antofagasta and Salta. To serve as part of a main line, this branch, which was formerly laid with 36-lb. rails, has recently been re-laid with 65-lb. rails. Beyond the terminus of this branch at Augusta Victoria, the rails are already laid for approximately 90 km. (56 miles) to a point about 11 miles from Imilac station, and the formation has been completed to within 19 miles of the border between Chile and Argentina. The border is to be crossed at the Socompa Pass, 12,600 ft. above sea level. There are still 52 miles of rails to be laid on the Chilean side. The construction of this section is expected to cost about $1,300,000.

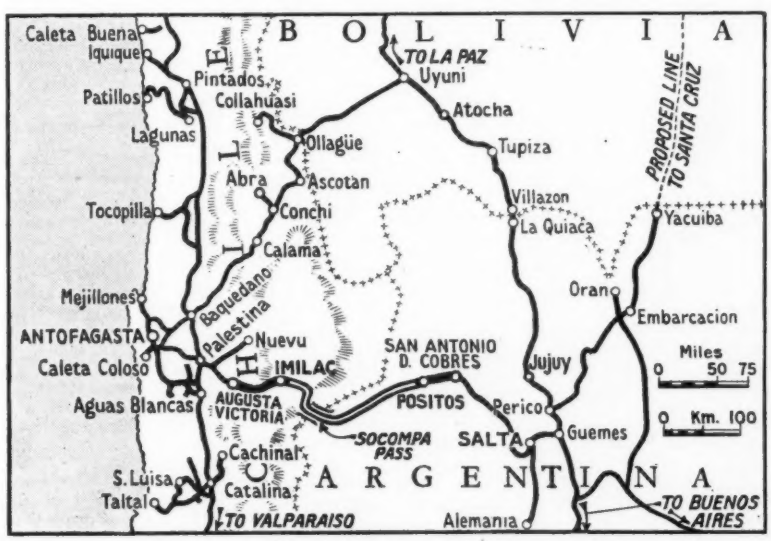
From Salta, in north-west Argentina, there are about 190 miles of railway already completed and in service, according to Senor Albino Vollenweider, the Chief Engineer in charge of construction on behalf of the Argentine Government. The railway uses the existing line from Salta to San Antonio de los Cobres, and the new construction now extends to the town of Positos, leaving 158 miles of the Argentine section still uncompleted. Last November, some 3,000 men were said to be working on the 30-mile stretch just beyond Positos, which was expected to be completed by the end of 1942.

Among the many engineering difficulties of the 190 miles between Salta and Positos are stated to be 30 bridges, 20 tunnels, and 15 trestles or viaducts. One of these, the Polvorilla viaduct, is built on a curve 722 ft. long and 207 ft. above the valley.

Pending the completion of the railway, a motor transport company has been organised in Argentina to convey passengers and goods over the mountain highway for the 210 miles which at present separate the railheads in Argentina and Chile. Cattle from the Salta region are shipped to the end of the railway and then driven over the Socompa Pass to the railhead in Chile. Although this mountain highway leaves much to be desired, the buses and lorries make the run from Antofagasta to Salta in the summer months in about 26 hours, but during the winter the pass is frequently closed by snow.

Salta is, of course, on the metre-gauge system of the Argentine State Railways, and when the new line is completed there will thus be a transcontinental railway through Argentina and Chile without a break of gauge.

MADRID TRAMWAYS IN 1941-42.—The Sociedad Madrileña de Tranvias reports gross earnings of 33,180,000 pesetas in the year ended June 30, 1942, compared with 31,643,000 pesetas in the previous period. Working expenses were 27,900,000 pesetas, against 26,300,000. The company's fleet of 35 motorbuses is still entirely withdrawn from service, by reason of lack of fuel. An order has been given to the Fiat Company of Turin for 35 trolleybuses, each seating 80, at a cost of 8,400,000 pesetas. A dividend of 6 per cent. is declared.



Sketch map showing the relationship of the new line to the existing railway systems of Chile and Argentina

Modern Trend of Railway Engineering Practice

Abstract of Paper read before the Railway Engineering Division of the Institution of Civil Engineers on January 19, by Mr. George Ellson, C.B.E., M.Inst.C.E., Chief Engineer, Southern Railway Company

THE great development in electrified working on the Southern Railway in the past two decades has almost entirely altered the engineering practice on the railway. On that system the past ten years have seen the introduction and extension of main-line electrification schemes, resulting in a considerable increase in train-mileage. The length of electrified track has increased during this period from 798 to 1,765 miles. Consequently the permanent way has been subjected to considerably increased wear by reason of the more frequent train services and higher speeds, and the severity of this wear has been intensified due to the unsprung load in the multiple-unit electric rolling stock. These increasingly heavy traffic conditions have called for special measures to improve the standard of track maintenance.

Previous experience in the suburban electrified area showed the necessity of finding means to counteract the heavy wear of the rail-head, and this has been effected partly by improvements in the quality of the rail and partly by the use of lubricating appliances. The reduction of the wear of the head of sorbitic rails in comparison with untreated rails is substantial, and the medium-manganese sorbitic rails which have been used on a large scale for the Southern Railway electrified lines have given consistently good results. About 90,000 tons of these rails have now been put into the track.

Welding

The employment of welding for restoring the worn surface of crossings was commenced in 1927, and was quickly developed into standard practice. Much experimental work was done to determine the most suitable type of electrode for arc welding, which was the original method adopted. Later the oxy-acetylene method was found to give more consistent results, although in certain cases the electric-arc process has advantages.

Permanent Way Design

Improvements in permanent way design have played an important part in reducing wear, and mention may be made of the increased use and improvement of spring crossings, which provide a continuous running surface for wheels passing over the main line, without the break which exists in ordinary crossings. For packing new track after relaying, and ordinary maintenance in heavily-worked lines, mechanical tamping has been found particularly suitable; both electric and petrol-driven machines have been used. In country areas beater packing has been largely superseded by shovel packing, and a more recent refinement of the latter, "controlled" shovel packing (initiated by the London Midland & Scottish Railway) has proved very satisfactory. In ballasting the permanent way, the quality and size of the stone has been improved, and economical distribution has been facilitated by the employment of specially constructed hopper wagons and ballast ploughs. An alternative material to Baltic fir for sleepers has been found in the dense and heavy Jarrah wood, which requires no creosoting. Since 1928, about 196,000 steel sleepers have been used on the Southern Railway, although only about 20 per cent. of the total mileage is available for such user because of difficulty in insulation in electrified lines or where track circuits exist. Systematic re-alignment of curves and adjustment of super-elevation has resulted in considerably improved running, and the use of permanent alignment monuments has been of much assistance to the gangers in maintaining the track to its correct line and cant. When junctions and other layouts are due for renewal they are remodelled when necessary so as to provide for the highest possible speeds, and the preliminary laying out and numbering of the components in the depots before loading, which enables them to be expeditiously and accurately assembled in the track without laborious cutting and adjustment on the site, has been the standard practice since 1924.

Chemical Weed-Killing

Noteworthy developments have taken place in chemical weed-killing. In 1931 the first chemical spraying equipment consisted of two tenders from which the solution was sprayed by gravity. The modern spraying train now in use carries sufficient chemical for 130 miles, and is capable of operating effectively at all speeds from 5 to 30 m.p.h. With this equipment about 1,000 to 1,200 miles of track are sprayed on the Southern Railway during the two months when the weeds are most vulnerable, thus reducing considerably the amount of laborious hand weeding which previously occupied much of the length gangs' time.

Reduction in Expenditure

The effect of all these improvements on the Southern Railway is shown by the fact that in the ten years ended with 1938 (the last year for which published statistics are available) expenditure on permanent way maintenance showed a decrease of 4 per cent. in spite of a rise of about 15 per cent. in the cost of materials and a 26 per cent. increase in train-mileage; in fact, the cost of permanent way maintenance per train-mile was reduced by 31 per cent.

Instruction Classes for Staff

The increasingly severe traffic conditions and the demand for higher speeds, coupled with the development of modern methods of track maintenance, have shown the need for the staff concerned to be given an elementary knowledge of the principles involved. With this in view, in 1929 special lectures for permanent-way men were instituted, and regular classes have since been held at the principal centres every year. These are graded into "elementary," "advanced," and "supervisors'" classes, and are conducted by members of the technical staff. They have proved of great benefit both to the company and to the men themselves, who for the most part welcome the opportunity to increase their knowledge and qualify for advancement.

Maintenance of track in lines carrying light traffic has been facilitated by the introduction of petrol-driven trolleys where operating conditions permit. These trolleys convey men and materials without delay to the site of the work, and have enabled a system of centralised gangs to be developed, by which comparatively long stretches of line can be effectively maintained by mobile gangs, the regular inspection being carried out by patrolmen. On the Southern Railway about 550 miles of track are covered in this way.

Bridges and Structural Work

One of the first results of the investigations of the Committee of the Department of Scientific & Industrial Research in connection with the question of impact, the report on which was issued in 1928, was that a considerable amount of work was done on many existing types of locomotives in order to reduce their hammer-blow. In the latest type of heavy locomotives on the Southern Railway hammer-blow has been eliminated entirely.

More precise methods of testing bridges have now been evolved, and in many cases tests are carried out on bridge superstructures to establish a check on calculated stresses so that any latent strength may be fully utilised for load carrying. In order to meet possible war emergencies a number of standard railway bridges of spans between 40 ft. and 80 ft. have been designed and manufactured. They are suitable for any span or skew between these dimensions, and the flooring members of different spans are interchangeable.

Signalling

The institution of electrified working on any given section of line almost inevitably led to an increase of from 100 to 150 per cent in the number of trains, and such increase, when applied to lines which under the old conditions were heavily taxed, obviously necessitated revised methods for dealing with the new intensity of traffic. The solution of this problem was largely found in the adoption of colour light signalling, with its accompaniment of automatic and semi-automatic apparatus.

Station Improvements

The experience on the Southern Railway in regard to electrification was that this immediately led to considerable increase of the population in the areas electrified, and to great expansion of passenger traffic. A heavy programme of station reconstruction and modernisation was embarked upon, as the number of passengers which had to be dealt with had doubled, trebled, and in many cases even quadrupled since before the last war. The character of the old stations was often out of keeping with modern requirements, and it was necessary to incorporate in them a brighter and more cheerful tone in order to meet the increasing competition of road transport. All stations to be served by the new system are brought up to the new requirements as regards lengths of platforms, and facilities for increased bookings, etc.

Soil Mechanics

During the last few years much attention has been paid to the question of soil mechanics, and a good deal of research

work has taken place. The subject is of special interest to railway engineers because of the more exact knowledge available in regard to the incidence of landslides on embankments and cuttings and the allowable pressures for the foundations of heavy structures.

Materials

Having regard to recent developments in the manufacture of new types of material and also in methods of production and fabrication the author puts forward the following suggestions as suitable directions for further progress:—

(1) In regard to metals, is it possible for an improvement to be made in ordinary structural steel comparable to or greater than that which has been accomplished in rail steel by the sorbitic process, which would allow of bolder methods of design, and also a more economical use of the materials?

(2) As the great bulk of timber used for railway sleepers is imported, can an alternative material be found for this purpose which would allow of general use without the limitations which now apply to steel or concrete sleepers?

(3) In building materials two instances which come to mind are the limited range of suitable substances for flooring surfaces and for roof coverings, especially in regard to public and utility buildings.

(4) The preservation properties of painting materials for ferrous metals have remained static for a great number of years. Is it beyond the limits of practical possibility for a really permanent preservative to be found?

Port Facilities

The needs for fostering the sea traffic at the various ports on the south and south-east coasts have been met, and will no doubt fully prove their value. Mention may be made of the Southampton docks extension, of the George V graving dock, and also of the Dover train-ferry dock. A novel feature of the new dock estate at Southampton is the provision of shrubberies, flower-beds, and grass lawns in places that might otherwise have become an eyesore by being made dumps for a miscellany of spare gear. Following the construction of the train-ferry dock at Dover, the through sleeping-car trains between London and Paris were almost invariably filled to capacity. A considerable increase of both import and export goods traffic also resulted by the same route due to the much greater speed with which such traffic to and from the Continent was dealt with.

Extensions and Town Planning

Destruction of many important buildings in the vicinity of the railway by recent air raids has probably simplified the question of future extensions. It is most desirable that no scheme of town planning should be undertaken without the fullest possible consideration being given to railway requirements.

The Paper was illustrated by a film and other photographs thrown on the screen, and it is hoped to publish reproductions of some of these in future issues.

British "Austerity" Locomotives

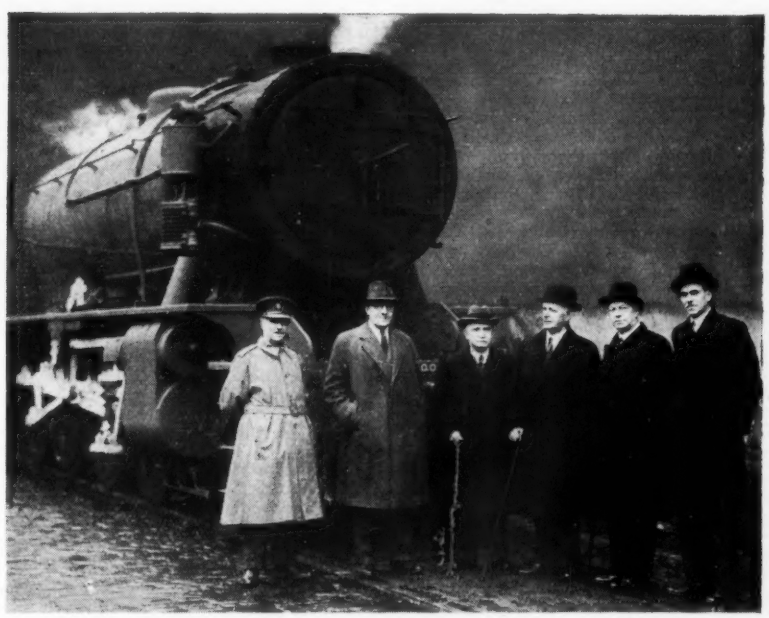
On Saturday, January 16, the first of the two-cylinder 2-8-0 locomotives, built for the Ministry of Supply by British locomotive firms, was handed over at a locomotive firms, was handed over at the North British Locomotive Co. Ltd.

Sir Andrew Duncan, Minister of Supply, and Mr. R. A. Riddles, in the driver's cabin
Photo] [Bulletin, Glasgow

works, Glasgow. An illustrated article describing these locomotives, of which all renewable parts are duplicated with those of L.M.S.R. standard locomotives, was given in our November 20 issue. The engines have a khaki livery, and every care has been taken in working out the details of the design to make sure that economy in labour and materials should be effected to the greatest possible extent. The engines are capable of hauling loads of 1,000 tons, and are to be employed for working heavy freight trains and military traffic of various kinds.

The locomotive was built in record time, and before going into service, it was inspected on Saturday by Sir Andrew Duncan, Minister of Supply. New materials have been substituted for those made scarce by wartime conditions, and the weight of steel castings employed has been greatly reduced. Mass production has resulted in a saving of about 6,000 man-hours of construction time. Among those present were:—

Sir Andrew R. Duncan (Minister of Supply), Sir Wm. Douglas (Permanent Secretary, Minister of Supply), Sir Geoffrey Burton (Director General of Mechanical Equipment), Messrs. R. A. Riddles, C.B.E. (Deputy Director-General, Royal Engineers Equipment), Wm. Leonard, M.P. (Parliamentary Secretary, Minister of Supply), Major Jackson Millar (Regional Controller for Scotland, Ministry of Supply) Messrs. David Kirkwood, M.P., J. N. Gresham (Gresham & Craven Limited), R. Marshall (Colvilles Limited), David J. Barr (Coltness Iron Company), R. D. Lawrie (Stanton Iron Works), Wm. Lorimer (Chairman, North British Locomotive Co. Ltd.), Jas. Black (North British Locomotive Co. Ltd.).



A group at the ceremony at Glasgow which attended the initial run of the first British-built "austerity" locomotive
Photo] [Bulletin, Glasgow

Prison for Damage to Railway Compartment.—Two men were recently convicted at Dumbarton on a charge of doing malicious damage to the furnishings of a compartment on an L.N.E.R. train between Glasgow (Queen Street) and Dumbarton. Evidence from railway staff at Dumbarton was to the effect that in the compartment in question they found three showcases broken, four blinds cut, a window strap missing, the nets of the luggage racks torn, and woodwork at the end of the racks broken. Baillie Campbell sent each of the two accused men to prison for 30 days.

Staff and Labour Matters

Railway Wages

After the meeting of the delegate conference of the Associated Society of Locomotive Engineers & Firemen on December 30 and 31, the society approached the Ministry of Labour & National Service with a view to negotiations being re-opened and meetings were held at the Ministry between the society and the Ministry's officials.

The delegate conference of the society reassembled on January 15 and decided to appeal to the Minister of Labour & National Service in the manner prescribed by the Conditions of Employment & National Arbitration Order. The resolution of the conference was as follows :—

"That the executive committee be instructed to inform the Minister of Labour that a dispute exists in the industry and we request that steps be taken under the conditions of the Employment & National Arbitration Order to give directions in connection therewith. Should the Minister fail to intervene in this way within the period prescribed in the Order, which is 21 days, a withdrawal of labour shall take place within 24 hr. following the expiration of that period."

N.U.R. Wages Policy

A delegate conference of the National Union of Railwaymen met in London on January 14 and 15 to consider the union's future wage policy. Mr. Benstead, the General Secretary of the union, made the following announcement at the conclusion of the meeting :—

"After fully examining every aspect of the wages question the meeting finally decided to leave the whole matter in the hands of the executive committee to deal with future salary and wages claims in the light of circumstances as they arise."

L.M.S.R. "Railbar"

Sixty customers a minute can be served at the L.M.S.R. Euston Station "Railbar," which was opened to the travelling public on January 18. The "Railbar" has been specially designed to meet the conditions of wartime travel consequent on the withdrawal of dining cars from most of the trains and the large increase in the numbers of service and civilian travellers, and, although passengers may consume snacks at the "Railbar," its primary purpose is to supply a variety of food suitable for travellers to take on the trains.

"Railbars," it is hoped, will be provided at Rugby, Crewe, Chester, Preston, Carlisle, Sheffield, and Derby, where there is a large volume of traffic, particularly exchange traffic. The normal scheduled stopping time of the trains in most cases should be sufficient to enable the traveller to get to the "railbar," obtain a snack and return with it to the train. The provision of "railbars" at these provincial centres is, however, largely dependent upon the supply of materials and female staff, which the company are finding is difficult to recruit.

The "Railbars" will have a good variety of snacks to offer to the traveller. There will be as many as 9 varieties of sandwiches. Hot drinks will include tea, coffee, and cocoa (for which special, reduced prices are charged to members of H.M. Forces), Horlicks, Bovril, and Oxo. Minerals and squashes will be available and there will be a soda fountain for supplying various kinds of cold "shakes." Tobacco and cigarettes will also be on sale.

Notes and News

Increase in Turkish Railway Charges.—The official German news agency reports from Istanbul that a considerable increase in passenger fares and goods rates came into force on January 1 on the Turkish State Railways.

Madras Railway Annuities.—It is notified that in accordance with the provisions of the Madras Railway Annuities Act, 1908, a total of £5,994,398 8s. 8d. was on October 7, 1942, invested in the sinking fund for Annuities Class "B."

U.S. Officers' Club in Belfast.—Since the L.M.S.R. Midland Station Hotel at Belfast, which was gutted during an air raid, was reconstructed as a hostel and club for United States army officers, it has been used by 4,000 men. It was opened on July 4, 1942.

London & North Eastern Railway.—The board has fixed January 28 as the date for striking the balances of the company's guaranteed, preference, and ordinary stocks. Final dividends declared for the year ended December 31, 1942, will be payable only to stockholders whose names are registered in the books of the company on that date.

Railway Supply Industries Joint Committee.—The title of the joint committee has been changed to Railway Engineering Supply Industries Joint Committee, to bring in the word "engineering," without which it was considered that the impression might be given that the committee represented all railway supply industries, instead of the engineering sections. Details of the constitution of the joint committee, and its objects, were given in our June 19, 1942, issue, on page 667.

Fluorescent Lighting on the L.N.E.R.—A new form of lighting known as "fluorescent" or "gaseous-discharge" lighting has been installed by the L.N.E.R. in the booking office and enquiry office at Kings Cross, and in the booking office and enquiry office at York. This form of electric-tube lighting is similar in shape to, but wider in diameter than, neon-tube lighting. A softly-diffused, glareless light which casts no shadows, is emitted. Where a large room or office has to be brilliantly illuminated, the change-over to the new lighting shows a reduction in the cost of electricity, without increase in maintenance charges.

Quick Service of Refreshments at Waterloo.—During the past eight months the Southern Railway has had in service at Waterloo Station a mobile canteen serving tea and light refreshments, introduced mainly for Servicemen, but also available to civilians. It was introduced when restaurant cars were withdrawn from trains, and is situated on the main concourse, as near as possible to the entrance to the platforms. About 6,000 customers a day are served at this bar by the two girls regularly employed. The bar is open from 8.30 a.m. to 5 p.m. In addition, there are still the refreshment trolleys on the concourse.

Moss Gear Co. Ltd.—The report for the year to August 31, 1942, shows that the net profit after making all provisions including taxation, was £77,688 (£77,360), and the balance brought forward was £55,621. Final dividend on the ordinary shares is 12½ per cent., making 20 per cent. for the year (same) and there is again a cash bonus of 5 per cent. on the ordinary shares. A sum of £5,000 (same) is written off from fixed plant and machinery, and £68,950 is carried forward.

Irish Railways Wages Board.—The Irish Railways Wages Board, acting as an advisory tribunal sat on January 19 at 11 a.m. at the Shelbourne Hotel, Dublin, to investigate and report on joint applications under Article 11 of the Emergency Powers No. 166 (Eire) Order, 1942, for bonus orders. These applications concern (i) in the case

British and Irish Railway Stocks and Shares

Stocks	Highest 1942	Lowest 1942	Prices Jan. 15, 1943	Rise/ Fall
G.W.R.				
Cons. Ord.	58	39	60½	+ ½
5% Con. Pref. ...	115½	105½	118½	— ½
5% Red. Pref. (1950)	109½	103½	109	— 1
5% Rt. Charge ...	133½	123½	134½	+ 1
5% Cons. Guar ...	130¾	121½	134	+ 2
4% Deb.	117	105	116½	+ ½
4½% Deb.	118	108	116½	—
4½% Deb.	125	113	121½	—
5% Deb.	137	126	135	— 1
2½ Deb.	77	70	75	—
L.M.S.R.				
Ord.	28½	16⅝	29	— ½
4% Pref. (1923) ...	63½	50½	64	— ½
4% Pref.	76½	67½	79	+ 1
5% Red. Pref. (1955)	103¾	94½	102½	—
4% Guar.	104¾	97½	106	—
4% Deb.	108¾	101½	109	—
5% Red. Deb. (1952)	111	107½	109½	+ ½
L.N.E.R.				
5% Pref. Ord. ...	9¾	2⅞	10½	— ⅜
Def. Ord. ...	5	1⅛	4½	— ⅛
4% First Pref. ...	62	49½	64	+ ½
4% Second Pref. ...	32½	18¼	33½	—
5% Red. Pref. (1955)	95½	79	96½	—
4% First Guar. ...	98	88	101½	— ½
4% Second Guar. ...	90	78	91½	— ½
3% Deb.	85	76	85½	+ ½
4% Deb.	106¾	100½	108½	+ ½
5% Red. Deb. (1947)	106	103	104½	—
4½% Sinking Fund Red. Deb.	106	102½	105½	—
SOUTHERN				
Pref. Ord.	77	61½	78½	+ 1½
Def. Ord.	23½	14¼	23½	— ½
5% Pref.	112¾	104	118	+ ½
5% Red. Pref. (1964)	110¾	105½	109½	—
5% Guar. Pref. ...	131	121½	134	+ 2
5% Red. Guar. Pref. (1957)	115½	109½	114½	+ 1
4% Deb.	116	104½	116½	— 1
5% Deb.	134	125½	134	—
4% Red. Deb. (1962–67)	110¾	106	109½	—
4% Red. Deb. (1970–80)	111	106½	109½	—
FORTH BRIDGE				
4% Deb.	109⅞	108	108	—
4% Guar.	105½	100	103½	—
L.P.T.B.				
4½% "A"	122½	111	122½	— 2
5% "A"	131½	122	130½	—
3% Guar. (1967-72	95⅜	97⅞	99	— 1
5% "B"	121	111½	122½	— 3
"C"	56½	38	57	— ½
MERSEY				
Ord.	27½	20½	28	+ 1
3% Perp. Pref. ...	61½	56½	59	—
4% Perp. Deb. ...	102¾	99¾	100	—
3% Perp. Deb. ...	80¼	76	78	—
IRELAND				
BELFAST & C.D.				
Ord.	9	4	9	—
G. NORTHERN				
Ord.	29¼	12½	27¾	— ¼
G. SOUTHERN				
Ord.	25	10	22	—
Pref.	29	12¾	26¾	+ ¼
Guar.	53	35½	50	— 1
Deb.	71½	55½	69½	— ½

§ ex-dividend

OFFICIAL NOTICES

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to :—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

London and North Eastern Railway

NOTICE is hereby given that the Directors have fixed January 28th at the close of business as the date for striking the balances of the Company's Guaranteed, Preference and Ordinary Stocks. Final Dividends declared for the year ended 31st December, 1942, will be payable only to the Stockholders whose names are registered in the books of the Company on the date so fixed.

Deeds of Transfer should, therefore, be lodged with the Registrar of the Company at Hamilton Buildings, Liverpool Street Station, London, E.C.2, before 5.0 p.m. on 28th January.

By Order :
W. H. JOHNSON,
Secretary.

Marylebone Station,
London, N.W.1.
18th January, 1943.

of the Great Southern Railways, the traffic, locomotive, and clerical staff ; road section supervisory staff ; clerical staff in the omnibus and road freight department ; and workshop supervisory staff (railways and road transport sections) ; (2) the traffic, locomotive, and clerical staff of the Sligo, Leitrim & Northern Counties Railway, whose home stations are in Eire. The board will also investigate and report on applications under Article 10 of Order No. 166 for wages (standard rate) orders applicable to the road section supervisory staff and the workshop supervisory staff (railways and road transport sections) of the Great Southern Railways.

British Electric Transformer Co. Ltd.—Net profit for the year to September 30, 1942, after providing for depreciation, etc., was £41,325 (£18,387), and £6,463 was brought in. Preference dividend again takes £9,531, and the final dividend on the ordinary shares is 10 per cent., making 30 per cent. (7½ per cent.) for the year, leaving £8,257 to be carried forward.

Metropolitan-Vickers Electrical Co. Ltd., and General Railway Signal Co. Ltd.—Metropolitan-Vickers Electrical Co. Ltd. has acquired the whole business of General Railway Signal Co. Ltd. The former company will operate through Rail Brakes Limited (a subsidiary of the General Railway Signal Co. Ltd.) and has changed its name to Metropolitan-Vickers-GRS-Limted.

B.A.G.S. Estimated Half-yearly Returns.—The estimated gross receipts of the Buenos Ayres Great Southern Railway Co. Ltd., for the half-year ended December 31, 1942, show an increase of approximately ps. 4,000,000 or £240,000, compared with the corresponding six months of 1941. It is estimated that, due to higher fuel costs, the working expenses have also increased by twice this figure.

Bengal & N.W. and Rohilkund & Kumaon Railways.—In view of the voluntary winding-up of these two companies in consequence of the acquisition of their undertakings as from January 1, 1943, by the Secretary of State for India, creditors are required on or before March 1 to send their names and addresses, and particulars of their debts and claims, and the names and addresses of their solicitors, if any, to Sir James Williamson, of 237, Gresham House, E.C.2, the Joint Liquidator.

I.C.I. (Rexine) Limited.—At an extraordinary general meeting of this company, held at the offices of Imperial Chemical Industries, Limited, Nobel House, Buckingham Gate, S.W.1, on December 31, 1942, the following special resolution was passed : "That the company be wound up voluntarily, and that George Haddock, of Rexine Works, Hyde, be and he is hereby appointed liquidator for the purposes of such winding-up, and that the liquidator be and he is hereby authorised to divide among the members of the company in specie any part of the assets of the company in accordance with Article 122 of the company's Articles of Association." In THE RAILWAY GAZETTE of January 8, page 54, the proposed exchange of Rexine shares into Imperial Chemical shares was mentioned.

Post Office Traffic Receipts.—The average daily receipts of the Post Office in the United Kingdom for November, 1942, amounted to £196,650, compared with £189,849 for the corresponding month of 1941, and £197,775 in October, 1942.

Greenock Motor Services Company.—This Statutory company, which is a subsidiary of the Scottish Motor Traction Co. Ltd. was registered in Scotland towards the end of last year as a limited company with a capital of £99,500. An extraordinary general meeting of the members of this company was held at the Caledonian Hotel, Edinburgh, on Wednesday, December 16, at 12.30 p.m. to pass a resolution to the effect that the company be registered under the Companies Act, 1929, as a company limited by shares under the name of Greenock Motor Services Co. Ltd. The alteration is in accordance with the policy of the Scottish Motor Traction Co. Ltd. to convert any of its subsidiaries which may be statutory companies into limited liability companies. The Statutory company was originally incorporated by Act of Parliament in 1887 as the Greenock & Port Glasgow Tramways Company, but on August 3, 1928, an amended Act authorised the company to abandon its tramways and replace them by buses, and change the title to the Greenock Motor Services Company. Tramway services were finally abandoned on July 15, 1929. Control of the company (which was formerly in the B.E.T. group) was acquired by the S.M.T. group in October, 1931, and is now vested in the Western S.M.T. Co. Ltd. The Greenock Motor Services Company operates a fleet of 95 buses, and is under a Statutory obligation to provide certain services in replacement of the former tramways ; competition with such service is limited to those buses which were licensed to ply for hire on the company's routes on May 1, 1928. The company's motorbus undertaking is free of any statutory rights of purchase by the local authorities. In connection with the tramway abandonment, the company's issued capital was converted and reduced on January 1, 1929, to the present total of £99,500.

A poster issued by the British railways which contains a timely reminder of the need for vigilance in supporting the national salvage campaign

Contracts and Tenders

The Egyptian State Railways have recently placed the following orders :—

London Electric Wire Co. & Smiths Ltd. : Copper, and resistance wires.

Concordia Electric Wire Co. Ltd. : Resistance wire.

G. H. Sheffield & Co. (Engineers) Ltd. : Springs.

Robt. Hyde & Son Ltd. : Brake hanger brackets.

North British Locomotive Co. Ltd. : Wheels and axles.

Power Flexible Tubing Co. Ltd. : Tubing.

Birmingham Battery & Metal Co. Ltd. : Tubing.

Director of Transportation, War Office : Steel rounds, plates, and angles.

Hall Harding Limited : Glass bends.

Le Grand, Sutcliff & Gell Limited : Driving points.

Grahamston Iron Co. Ltd. : C.I. bends.

Stewarts and Lloyds Limited : Tubes and nuts.

Thos. Wm. Lench Limited : Spindles and cupholders.

Director of Transportation, War Office : Bolts and nuts.

Oliver Machinery Co. Ltd. : Zinc rolls.

Tempered Spring Co. Ltd. : Springs.

Railway Stock Market

Stock Exchange markets experienced a moderate contraction of business in most sections, after their recent strong advance. Nevertheless, security values were very firm, and where declines were shown they were very moderate compared with the extent of the gains made earlier in the month. Home railway prior charges remained in steady demand, and in numerous instances were difficult to obtain in any amount. There was rather more profit-taking in junior stocks following their recent advance, but the slightly lower prices subsequently attracted buyers when markets resumed a buoyant trend under the influence of the good war news from Russia. Early in the week the view appeared to be developing that resumption of heavier air raids might influence the forthcoming dividend decisions. Nevertheless, the prevailing market belief is that the dividends are likely to be as generous as possible within the limits of the Government rental and any improvement in ancillary revenues. Moreover, as to the long-term outlook it is possible that at the annual meetings references will again be made to the rights of the railways to the standard revenue of the Railways Act of 1921. Firmness was shown in gilt-edged and other high-class investment stocks; home railway prior charges were also assisted by the belief that part of the proceeds arising from the vesting of Indian railway debentures will be reinvested in senior home railway stocks. Despite the recent advance in prices, Southern 4 per cent. debentures yield over 3⅜ per cent. while slightly larger yields are obtainable on L.N.E.R. 3 per cent. and 4 per cent. debentures.

Argentine railway securities reacted sharply. The statement of the B.A. Great Southern came as a warning not only of the extent to which rising traffics may be offset by increasing operating costs, but also of the probability that the future holds little scope for reasonable recovery in earning power unless the British-owned railways in the Argentine receive more equitable treatment from the authorities in that country. In other directions, renewed attention has been given to French railway sterling bonds, which made better prices. Elsewhere, speculative demand was reported for Mexican Railway debentures.

Compared with a week ago, Great Western ordinary has reacted from 61½ to 60½ at the time of writing. The 4 per cent. debentures were fractionally lower at 116. On the other hand, Great Western guaranteed was higher on balance at 134, and the 5 per cent. preference at 118½ more than held the good rise referred to a week ago. Among L.M.S.R. issues, the senior preference was half-a-point higher, being 79 at the time of writing, and the 1923 preference has been well maintained at 64½; the ordinary stock eased to 29. L.M.S.R. guaranteed was 105½, compared with 106 a week ago; the 4 per cent. debentures were maintained at 109. L.N.E.R. second preference reacted slightly to 33¼, and the first preference was 63½, compared with 64 a week ago. Moreover, the first guaranteed at 101 lost a point of the recent good rise; the second guaranteed was 91½. Whereas L.N.E.R. 3 per cent. debentures remained at 86, the 4 per cent. debentures improved further to 108½. Southern preferred continued an active feature; buyers were attracted by the apparently generous yield, but 78, compared with 78¼, was as a week ago; at 23¼, the deferred lost ⅜ of a point on balance. This railway's 5 per cent. preference remained in steady request on investment and yield considerations, and at 118 was well maintained in price; the 4 per cent. debentures were 116. London Transport "C" issues were favoured, partly on the asssumption that whatever post-war changes may be in store there will be no question of a change in capital structure in the case of London Transport. The "C" stock was higher at 58½, and further good gains were recorded in the senior stocks; the 5 per cent. "B" was 123, compared with 120½ a week ago. Elsewhere, small fluctuations were shown in Canadian Pacifics.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1941/2	No. of Weeks	Aggregate Traffics to date: Totals 1942/3	Aggregate Traffics to date: Totals 1941/2	Aggregate Traffics to date: Increase or Decrease	Shares or Stock	Prices: Highest 1942	Prices: Lowest 1942	Prices: Jan. 15, 1943	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	10.1.43	22,730	+ 2,030	2	49,300	37,320	+ 11,980	Ord. Stk.	14	7⅜	12	Nil
	Argentine North Eastern	753	9.1.43	10,650	+ 1,584	28	361,626	310,908	+ 50,718	"	6½	3	6	Nil
	Bolivar	174	Dec., 1942	6,234	+ 1,743	52	59,762	47,694	+ 12,068	6 p.c. Deb.	19½	10	18½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	20½	9	21½	Nil
	Buenos Ayres & Pacific	2,807	9.1.43	110,700	+ 23,700	28	2,561,940	2,217,180	+ 344,760	Ord. Stk.	7¼	4	6	Nil
	Buenos Ayres Great Southern	5,080	9.1.43	181,500	+ 18,540	28	4,079,280	3,798,300	+ 281,280	Ord. Stk.	12½	7⅛	11	Nil
	Buenos Ayres Western	1,930	9.1.43	47,880	+ 1,080	28	1,452,840	1,383,780	+ 69,060	"	12½	6	12	Nil
	Central Argentine	3,700	9.1.43	137,400	+ 35,724	28	3,566,217	2,945,169	+ 621,048	"	9½	4 1/16	7⅛	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	3½	2¼	4½	Nil
	Cent. Uruguay of M. Video	972	9.1.43	28,443	+ 8,063	28	643,130	641,941	+ 1,189	Ord. Stk.	8	4	5	Nil
	Costa Rica	262	Nov., 1942	13,585	— 9,493	23	64,960	114,236	— 49,276	Stk.	16½	11	14	Nil
	Dorada	70	Nov., 1942	16,530	+ 3,470	48	173,705	136,030	+ 37,675	1 Mt. Db.	90½	89	86½	6½
	Entre Rios	808	9.1.43	17,454	+ 4,812	28	510,768	448,284	+ 62,484	Ord. Stk.	9½	4½	8½	Nil
	Great Western of Brazil	1,030	31.12.42	14,600	+ 7,300	52A	639,800	544,200	+ 95,600	Ord. Sh.	33/-	9/-	42/6	Nil
	International of Cl. Amer.	794	Nov., 1942	$481,524	— $50,446	52	$5,554,318	$5,097,659	+ $456,659	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1½	5/3	2	Nil
	La Guaira & Caracas	22¾	Dec., 1942	9,560	+ 3,885	52	90,370	78,050	+ 12,320	5 p.c. Deb.	11½	5	81½	Nil
	Leopoldina	—	26.12.42	42,668	+ 8,768	52	1,586,594	1,382,049	+ 204,545	Ord. Stk.	6¾	3½	5½	Nil
	Mexican	483	7.1.43	ps. 254,500	— ps. 9,000	1	ps. 254,500	ps. 263,500	— ps. 9,000	Ord. Stk.	1	⅛	1	Nil
	Midland of Uruguay	319	Oct., 1942	13,987	— 470	19	49,979	54,791	— 4,812	—	—	—	—	—
	Nitrate	382	31.12.42	6,331	+ 884	52	188,496	145,834	+ 42,662	Ord. Sh.	77/-	3⅛	72/-	—
	Paraguay Central	274	8.1.43	$3,545,000	— $41,000	28	$106,087,000	$97,627,000	+ $8,460,000	Pr. Li. Stk.	53	40	50½	11½
	Peruvian Corporation	1,059	Dec., 1942	83,045	+ 6,346	27	497,667	432,542	+ 65,125	Pref.	19⅞	5½	17	Nil
	Salvador	100	Nov., 1942	c 84,000	+ c 31,000	22	c 320,000	c 244,172	+ ‖ 75,828	—	—	—	—	—
	San Paulo	153½	31.12.42	28,595	+ 10,520	52A	1,950,435	1,916,439	+ 33,996	Ord. Stk.	59	41	59	3½
	Taltal	160	Dec., 1942	5,683	— 3,253	25	31,086	27,760	+ 3,326	Ord. Sh.	41/-	23/4	32½	Nil
	United of Havana	1,346	9.1.43	51,964	+ 32,117	28	1,234,705	540,371	+ 694,334	Ord. Stk.	8¼	2¼	7½	Nil
	Uruguay Northern	73	Oct., 1942	1,425	— 38	19	4,730	5,392	— 662	—	—	—	—	—
Canada	Canadian Pacific	17,039	31.12.42	1,560,400	+ 158,800	52	51,373,000	44,289,200	+ 7,083,800	Ord. Stk.	16¾	9 7/16	16¼	Nil
India†	Barsi Light	202	Oct., 1942	13,747	— 255	30	106,747	101,002	+ 5,745	—	—	—	—	—
	Bengal & North Western	2,090	Nov., 1942	264,975	— 33,087	8	449,400	561,082	— 111,682	—	—	—	—	—
	Bengal-Nagpur	3,267	10.8.42	274,725	+ 10,341	19	3,712,696	3,407,058	+ 305,638	Ord. Stk.	102½	88	101½	4
	Madras & Southern Mahratta	2,939	31.7.42	341,625	+ 133,549	18	2,714,939	2,473,086	+ 241,853	"	105¼	87	107½	5 1/16
	Rohilkund & Kumaon	571	Nov., 1942	555,750	+ 5,072	8	115,950	99,909	+ 16,041	—	—	—	—	—
	South Indian	2,402	31.7.42	197,725	+ 31,400	18	2,246,577	1,759,595	+ 486,982	"	103¾	88 7/16	101½	4 1/16
Various	Egyptian Delta	607	20.10.42	13,364	+ 1,277	31	224,460	157,047	+ 67,413	Prf. Sh.	5⅛	1⅛	4	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	44	35	42½	8⅛
	Midland of W. Australia	277	Nov., 1942	40,498	+ 18,788	20	159,912	103,592	+ 56,320	Inc. Deb.	95	90	93¾	6
	Nigerian	1,900	29.7.42	51,026	+ 12,476	19	1,212,844	1,122,822	+ 90,022	—	—	—	—	—
	South Africa	13,291	14.11.42	789,575	+ 15,752	34	25,695,697	24,696,661	+ 999,036	—	—	—	—	—
	Victoria	4,774	Sept, 1942	1,380,155	+ 327,758	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of 1/16
† Receipts are calculated @ 1s. 6d. to the rupee
Argentine traffics are given in sterling calculated @ 16⅔ pesos to the £
§ ex dividend